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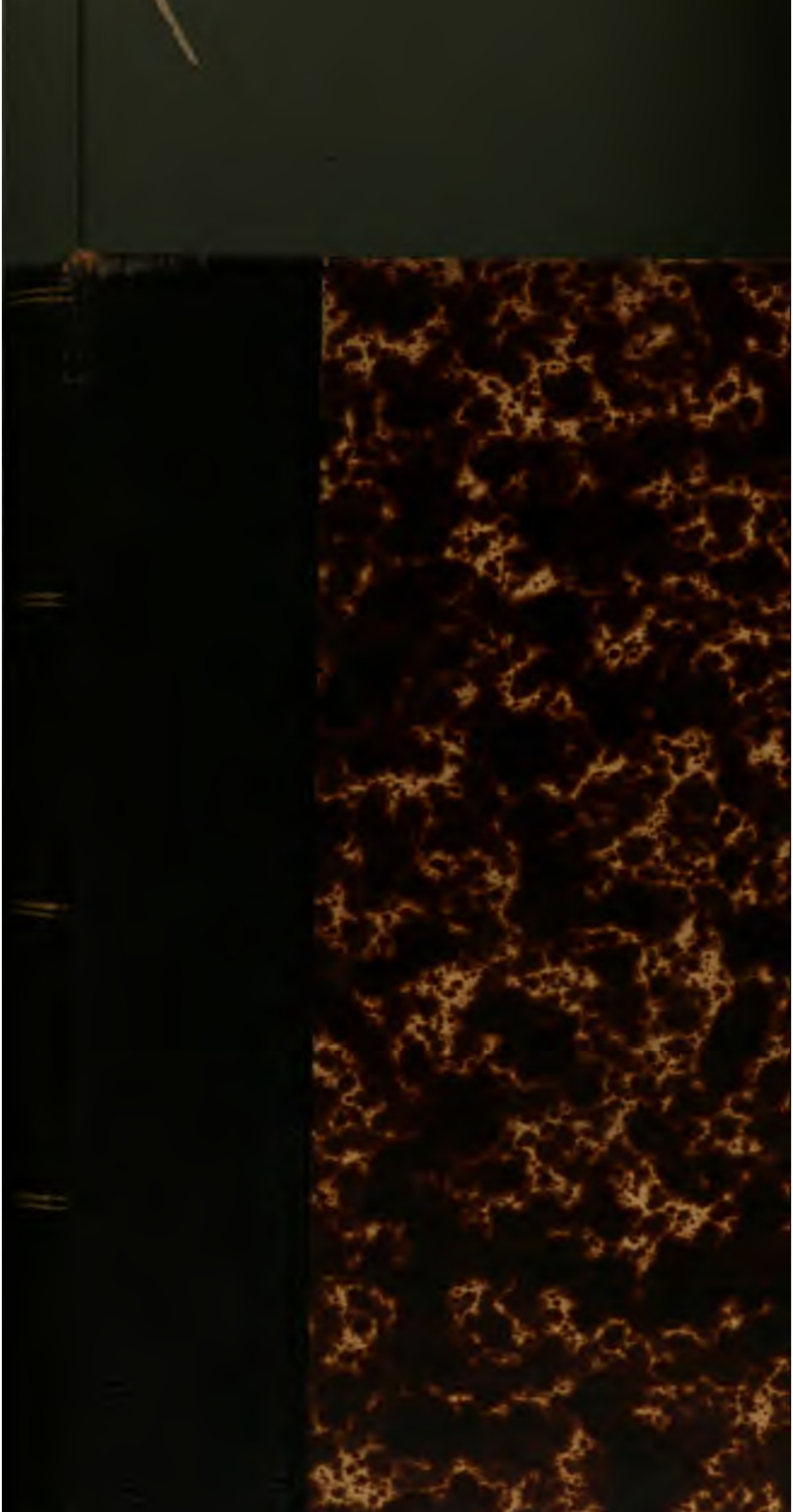

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THE

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MEDICAL JOURNAL.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Relapsing Fever in Edinburgh*, 1870. By CLAUD MUIRHEAD, M.D., Assistant-Physician to the Royal Infirmary.

(*Read before the Edinburgh Medico-Chirurgical Society, 1st June* 1870.)

THE announcement which was made some time ago, that relapsing fever had again made its appearance in England, could not fail to excite a peculiar interest in the minds of the medical profession in Edinburgh. For, apart from the fact that it was hardly possible that this interesting disease could come so near to us without actually revisiting the field where several years since it found so congenial a soil, it ought not to be forgotten that here, in this city, and before this very Society, relapsing fever was first accurately distinguished from typhus. For to Dr Henderson belongs the merit of pointing out the essentially different characteristics of these two fevers, indubitably so in their course and symptoms, and most probably having for their origin a distinct and different poison. It was, therefore, not without much interest, and some satisfaction, that I made the acquaintance of this remarkable disease in the Fever Wards of the Infirmary, in January of this year. At the same time, it is matter of no small congratulation to the philanthrophic inhabitants of Edinburgh, and reflects considerable credit on the wealthier portion of the community, that by their efforts they have been able, if not entirely to avert, at least to control within manageable limits, this disease, which is believed to make its appearance only in an epidemic form, and in periods of commercial distress, and to acknowledge for its origin want and overcrowding.

A few notes regarding those cases which have already mad their appearance, I purpose now to give you. And, first, as to thei

I. *Origin.*

The first cases which presented themselves at the Infirmary were boys, who came from the Industrial Brigade. But these boys, I have since been able quite conclusively to satisfy myself, caught this disease by infection. The three who first came into hospital took it into their heads—prompted, no doubt, by morbid curiosity—to abscond from the Brigade Home, and to spend three or four nights at the house of the father of one of the boys in Kitchen's Court, Cowgate. This man had died somewhat suddenly and unexpectedly of some complaint, reported by the neighbours to be fever, but which the doctor, who visited him from the Cowgate Dispensary, informed me that he could not pronounce to be fever, because the man was then anything but feverish, and appeared to him to stand in need of food more than of physic. To the doctor's surprise, this man died about three days after he had seen him. I may mention that the man was over fifty years of age, and of very intemperate habits. He was at one time a soldier, and latterly a tailor by trade, and lived almost entirely on spirits and tobacco. Curiously enough, a son of this man was sent into the fever house in December, labouring under what was supposed to be fever. On referring to the journal, I find that he is there entered as a case of "poverty and want." He had no fever while in hospital, and had none when he came in, and, after a residence of a week or ten days, was dismissed. The only thing remarkable about him was the intolerable amount of dirt and filth with which his body was encrusted. Now, dirt is not an uncommon accompaniment to those who come into hospital with fever, but this boy far exceeded the usual amount. He himself stated that he had not been washed for three years, when his mother died of typhus fever in hospital. At that same time, both this boy and the father were sufferers from typhus. So that I am much inclined to conclude that the father did not die of typhus—indeed, I have the doctor's assurance of this—but that he died by syncope after relapsing fever. He was found sitting on the end of the bed leaning over the fireplace, as if he had got up during the night, either to warm himself, or to console himself with a smoke. As going still further to strengthen this supposition, I may mention that a neighbour of this man, who kindly went to the assistance of the old man, helping him to bed, and otherwise occasionally nursing him, himself took relapsing fever immediately after the death of this man, and came into hospital with it. Two of his children also took it, and were sent into the Children's Hospital. However, be that as it may, these three Brigade boys spent some nights in that house after the man was dead, one of the three being a son of the man. With much-to-be-commended filial respect, this boy Kennedy, with the assistance of one of the other lads, dressed his father's body decently in a shirt, and laid him in his coffin. This duty they had a second time to perform, in consequence of the cupidity of the sister of this unfortunate man, who, coming into the house, observed what she considered great waste in sending a shirt to be buried. This she would not allow, but removed the shirt, and carried it to the pawn-shop. And this same sisterly conduct she exhibited a second time, when the boys had again wrapped the man in a sheet. The woman, I understand, is since dead, possibly of the same fever. I have since ascertained that the amount of cubic space allowed to each inmate of this room during the time that the boys resided there, was only 260 cubic feet.

I enter into these particulars because they have a material and intimate bearing upon this case, showing the amount of contagion as well as infection to which these lads were exposed, and because a good deal was made of this story, which had got about in a misrepresented form, to prove the intimate connexion between typhus and relapsing fever, if not their identity; the belief being that this man had died of typhus fever, which he certainly did not do, whatever was the cause of his death.

Next day these three lads returned to the Brigade Home in Grove Street. Two of them were sent to the cells for running away and leaving their work, and fed on bread and water. The third boy was not punished, as he seemed to have a reasonable excuse for leaving work in the death of his father. In the punishment-cell, one boy (Connor) was kept for two days and nights, after which he returned to his work, and was treated like the other inmates. The second boy (Hughes), after being kept one day and night in the cell, was next morning dismissed from the Brigade as incorrigible. The third lad (Kennedy) continued to board and lodge at the Brigade Home until the 12th of January, when he went to reside with his aunt in the Pleasance. That very night, for the first time, he complained of a sore head, while next day this headache continued, added to which he was shivering all day, though still going about; but this he could not do next day, and in the afternoon he was obliged to go to bed, and on Saturday, the 15th, he came into the hospital, on the fourth day of his illness.

On the afternoon of the 14th January, the first boy (Connor) began to shiver while at work, and in the evening complained of intense headache, was giddy, could not walk straight, and became delirious. Next day he was sent into hospital, on the second day of his illness.

The second boy (Hughes), after dismissal from the Brigade, earned his livelihood, such as it was, at the railway station, the usual haunt of this class of boys, by carrying portmanteaus and such like, sleeping at night in common stairs, lodgings when he could pay for them, and canal boats. On the 13th January, he began to complain of headache and shivering; and as if by instinct, he went up to the neighbourhood of his old quarters, in Grove Street, where he was kindly treated by a baker who took compassion on him, and allowed him to stay all night in his flour-house, and covered him over with many flour-bags to keep him warm, and left him there for the night. During that night he vomited freely. Next day he assisted the men at their work, so far as he was able, and that night he again spent in the flour-house. Next morning, 15th January, being still very unwell, the baker went to the Brigade Home, and entreated for him, when he was allowed to return to it. All this time, the shivering, headache, and inability to eat continued. On Sunday, 16th January, he was seen by a doctor, who pronounced him to be labouring under fever, and he was therefore separated from the other boys; and next day, 17th January, came into hospital, on the fifth day of his illness.

Thus, then, granting that these boys took this fever, by contagion and infection, from residence in the house in Kitchen's Court, we find that the length of time during which it remained latent, or, technically speaking, the period of incubation, extended from six to nine days at least.

These boys, as I have already stated, returned to the Brigade Home after their residence in Kitchen's Court, one only of whom, however, continued to sleep in the dormitory, where there were 40 beds, until he first showed symptoms of illness. There he remained until he was removed to hospital, consequently he must have communicated the infection to his nearest bedfellows. Accordingly, the next boys in whom this fever showed itself were the boys who occupied the beds on each side of him, though, curiously enough, one intermediate boy was missed over, which suggests the possibility that contagion has more to do with the spreading of this fever than infection. However, what I wish to show at this moment is the period of incubation of the fever in these two boys. One was brought into hospital on the second day of his attack, the other on the very first day, on the 19th and 20th January respectively. Hence, dating the period of infection from the day on which the boy Connor first showed symptoms of relapsing fever—viz., on the 14th of January—the least possible period of incubation in these two lads was five and seven days respectively.

Hence, I think that I am fairly entitled to conclude that the period of incubation extends from five to ten days.

The manner by which relapsing fever spreads is for the most part contagion, though of course I do not mean to exclude the probability of infection acting also as an exciting cause. Thus, after the boy above referred to (Connor) was removed to the Infirmary, having been already two days ill in the Brigade Home, other eight boys came into hospital from the same institution, all labouring under relapsing fever, besides five or six others who were sent in on suspicion of having it. Now it is very interesting to observe, that all those boys who came into hospital, for the most part, occupied beds in their dormitory immediately adjoining each other. And though this would point more to infection than contagion as the exciting cause, it must be mentioned that these boys are all mingled together in one schoolroom every night for two hours, besides having their meals together. And every one knows how boys of this age, from 10 to 16, push and knock each other about, and how very intimate their relations are to each other. In further corroboration of this view, I may mention that other two lads came into hospital suffering from relapsing fever, who occupied the same lodgings in the Grassmarket, and who also shared the same bed. Another family of six were admitted from Canonmills, and the father told me that he took the fever from his little son, who was crying bitterly with the pain in his head, and entreated his father to take him into his bed, as he thought he should then be well; the father complied, and that very morning he was seized with headache and shivering. On the whole, then, contagion is quite as potent an exciting cause, if not more so, than infection.

As to *Sex.*—Of the 40 cases which have come under observation, 32 were males, and only 8 females, or exactly 4 to 1.

As to *Age.*—24 of the 40 cases were under 20 years, or 60 per cent. The oldest was 59, and he died; the youngest 5 years of age.

Occupation seems in no way to predispose persons to be attacked by relapsing fever. For those who came into hospital suffering from it were representatives of all kinds of trades, and no one more than another seemed to furnish victims to this disease.

It is worthy of note, that of the actual number of patients observed, 64 per cent. were either actually born in Ireland, or, though born in this country, were of Irish extraction, and lived in all the habits and ways of their Irish parents. And if we add those who undoubtedly took the disease directly from these Irish people, either from lodging with them, and thus virtually becoming as one of them, or by waiting on them when sick, we raise the percentage of Irish who were attacked to 77. Two were Englishmen, tramps, who came to Edinburgh with the disease upon them, so far as I have been able to gather, and they left the city as soon as they were thoroughly convalescent. They resided for a day or two, before entering into hospital, in lodgings in the Grassmarket, where they communicated the disease to others living in the house. The remainder were Scotch people.

But of all the causes which have been held to excite this disease, destitution occupies by far the most prominent position, and hence, indeed, many of the synonymes by which it is known, as Famine fever, *Armentyphus, die Hungerpest.* Without at all attempting or desiring to deny that this is a very common and the usually accepted cause of relapsing fever, I wish to state that in no single instance which came under my observation could starvation be said to be the immediate cause of the disease. Not one of those individuals could be said to be emaciated. In fact, they were all wonderfully clothed with fat. As a rule, they were stouter and more well-to-do in appearance than typhus fever patients usually are. But not only did they appear to be well nourished, but, on strict and repeated inquiry, not one of them would confess to having been in destitute circumstances. On the contrary, many of them lived well, and were in the habit of eating butcher-meat every day, some only two or three times weekly, and in no case, where I made the inquiry, did I find that they did not partake of it at least once a week. I take this article of diet as a pretty fair test of the style of living in that class of people who become inmates of the Infirmary, for this they are wont to regard as a sort of luxury, and usually it is the first thing to be dispensed with when their circumstances cease to be quite so prosperous as usual. And, further, not one of those individuals was out of work at the time of entering into hospital, with the exception of the two Englishmen, who arrived from Manchester in search of work, having found their way to Edinburgh after a long journey of some weeks on foot. It is quite possible that they had not lived so well as they had been accustomed to do during their pedestrian tour; at the same time, it must be remembered that they were neither destitute nor entirely without funds, as they immediately located themselves in respectable lodgings in the Grassmarket, not altogether unknown to people of their class, and which rejoices in the name of the "Stranger's Home." But, excluding these two men, who in all likelihood arrived here with the disease upon them, I found that most of the patients were in receipt of good wages, ranging from 16s. a week up to 30s. and 35s. In this, of course, I do not include the apprentice boys, who, in addition to their wages, had the advantage of free board and lodging. I shall revert to their case again. And in addition to this, in several instances, more than one member of the family was earning weekly wages, which rendered the keeping up of the household all the lighter for the father, and by this means enabled the family, as a whole, to fare better.

Then as regards the Brigade boys. At first, believing entirely in the assertion that destitution has more to do with the generation of this fever than anything else, I was disposed to blame the managers of that institution for trying to overtake more than their income allowed them to do, with justice to the recipients of the charity. But, on inquiry, I find that this was not so; on the contrary, the boys were well and abundantly fed, with one slight error; and this was certainly a grave one, but which has, I understand, been now rectified.[1] The fault I refer to was this, that certain of the boys who, as apprentice painters, etc., happened to be engaged at work in parts of the town too distant from the Brigade Home in Grove Street to be able to return to it for dinner, during the dinner-hour, were not provided with sufficient food to make up for the want of the otherwise plentiful dinner. They merely took in their pocket a slice and half of bread, with, at times, the addition of a little cheese; and, after this, they got nothing from breakfast time till they returned home in the evening. Without doubt, this was much too scanty a supply of food for growing lads, aged about 15 or 16, especially when they were working hard all that time. Yet, notwithstanding this acknowledged limited supply of food, the lads were by no means in what would be called an impoverished or destitute condition. On the contrary, they presented the appearance of lads in good condition, of lads who had been "training" for some time, without any superfluous fat, firm muscle, and a generally healthy aspect. Further, if this small allowance of food had anything to do with the generation of this complaint, how comes it that it did not spread to the other lads who were in precisely the same circumstances, and who presented precisely the same conditions for its development as those in whom it showed itself? for there were many other lads who did not return to the Brigade Home at dinner-time, and who carried with them in lieu thereof the same portion of bread and cheese, and yet they did not take the fever. Then, again, on the other hand, lads who enjoyed the benefit of a good dinner daily took the fever notwithstanding. This, it appears to me, is of itself sufficient evidence that starvation had nothing whatever to do with the generation of the fever in their case.

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[1] *Dietary of Industrial Brigade.*—Breakfast: Porridge and milk *ad libitum*, and slice of bread. Dinner: Two plates of vegetable broth with beef in it, and a slice of bread; or, herrings, potatoes, and bread; or, rice and bread, in addition to broth, on Friday. Supper: Porridge and milk, and a slice of bread after going to bed.

No doubt, I shall be asked, if I thus deny that destitution acts as an exciting cause of relapsing fever, what do I consider the exciting cause to be? Now, I desire to state emphatically that I do not deny that starvation *may* prove an exciting cause, but all that I am arguing against is, that it is the *only* exciting cause, or even the chief exciting cause. For, as I have already stated, not one of the cases of relapsing fever which have been admitted into the Infirmary this winter, presented the usual symptoms of starvation. The only other exciting cause which appears to me to apply with equal force to all, or certainly the great majority of the cases, is overcrowding in their homes. Thus, for instance, in the dormitory at the Brigade Home, 40 boys sleep together; though it must be admitted that, even in the middle of the night, about 2 A.M., four or five hours after they have all gone to bed, the air of the room is not what one would call "stuffy," but wonderfully fresh. In this room the amount of cubic space allowed to each inmate is only 360 cubic feet per head, and in the other room only 240. Yet I ought to mention, that in both cases windows are kept open all night in an adjoining apartment; though I hold that the movement of air in a room, however rapid, can never make up entirely for deficiency of cubic space. At the same time, I do not believe that the fever broke out among them spontaneously, generated by overcrowding, though I do hold that it was propagated by this means. And had it not been for the prompt and energetic conduct of one of the most interested of the managers, who had the boys transferred to the Infirmary immediately that they showed any signs of illness, after he was told that it was fever which had broken out among them, and the further expedient of removing the still healthy boys to other quarters quite removed from the Brigade Home, by this means "stamping out" the fever, I do believe that it would have spread, and that, too, most rapidly, among the other lads, till they should all have been laid down with it. In another instance, six of a family came in one after the other until the last of them was admitted. After repeated and careful inquiries put to the father, who was a very intelligent man, I could trace no history of infection, nor of destitution; in fact, the very reverse of this, for the man was in the habit of eating butcher-meat to dinner almost daily (Fridays excepted). He had only come from Ireland about three months previously with his family, where he had been, for him, in easy circumstances. Though, on first arrival here, he and his family caught the itch in dirty lodgings, yet he and his son immediately got work in his own trade of whip-cord maker, so that at no time were they in want of food; and, at his trade, his son was working, when he first applied to me at the New Town Dispensary. He could tell me of no one of the many workers having been laid aside from illness of any sort since he joined them, neither had he heard of any of his neighbours suffering from any similar complaint. The only cause, then, which I have to fall back upon is this overcrowding. On visiting his house, I found it consisted of one small room, 15 ft. × 12 × 8, with a small dark closet, which was used as a lumber-room. There was one window of very limited dimensions. The amount of cubic space allowed to each inhabitant in this room was thus only 240 cubic feet, and the movement of air was certainly of the smallest possible amount compatible with movement at all. The air in the room was hot, stifling, and smelt sickeningly of human beings.

Then, from a house in the Cowgate, consisting of one room in the upper flat, where nine people lived, seven of them came into the Infirmary, and the other two took the fever also, but remained at home. The amount of cubic space allowed to each inmate in this instance was 400 cubic feet, and the movement of air during the night is reduced to a minimum, and is in effect *nil* when the fire goes out. Were it not for the presence of this generator of current-distribution, I do believe that this room would speedily have degenerated into a veritable pest-house. As it was, during the day, when the fire was alight and the windows open, it was an immense satisfaction, and with a feeling of intense relief, that one escaped from it into the free air. In this house, I was told that the first to take the fever was a girl of 16, who was a worker in a tobacconist's shop, and she asserted that she caught the fever there, simply because on coming home one night she was seized with intense headache and vomiting; *therefore*, she had caught the infection in the shop. She knew of no other one who was ill at that time among the workers, nor of any that had lately been so. These people fared well, and seemed to be wonderfully happy in their dirty house, and very contented. The room was very dirty—so were the inhabitants of it; and on entering it one was nearly overcome with that overpowering odour which emanates from the unwashed bodies of the human species. Certainly, if the fever did not arise from this state of matters, it was small wonder that all the inmates took it after it made its appearance among them. From that house it spread to the two lower floors, evidently by contagion, as the families were very intimate, indeed, related to each other, until fifteen in all took this fever in this one house.

Hence I feel warranted in concluding, that overcrowding has quite as much to do with the generation of relapsing fever as destitution, infinitely more in its propagation, and in the cases which have this year presented themselves at the Infirmary, much more to do with it as an exciting cause than destitution.

I proceed now to give a summary of the more important *symptoms* of relapsing fever.

II. *Symptoms.*

As I have already stated, I believe that the period of incubation extends from five to ten days, after which, without any premonitory symptoms whatever, the patient is suddenly seized with intense headache or chilliness, often amounting to decided rigors, or vomiting. Some one or all of these usually attacks the patient when he considers himself to be in the enjoyment of perfect health, and he is quite unable to account for the sudden feeling of general *malaise* which speedily supervenes upon the first onset of the complaint. Thus, in the case of one lad, who was at his work all day, and went through it with his usual activity, he, on his way home in the afternoon, felt chilly, but was able to enjoy his supper of porridge and milk. Immediately thereafter, severe headache attacked him, he became giddy, unable to walk, had repeated rigors, became unconscious and delirious to such an extent as to need restraint to keep him in bed. This, however, was an exceptionally severe case. It is rare for the disease to lay hold of the brain to such an extent, particularly at the very outset of the fever. More usually this chilliness is of short duration, and is for the most part a mere subjective symptom, and is speedily succeeded by a sensation of heat, which at times attains such an intensity as to register by the thermometer a temperature of 106° or even 107° Fah. During this stage the patient most usually is extremely restless, though sometimes he is, as it were, so felled by the poison as to lie utterly prostrate and apparently unconscious, totally helpless, and passing his evacuations in bed unknowingly. He complains of great thirst, and the tongue, while in the majority of instances moist, is covered more or less with a whitish yellow fur. Vomiting of green bilious-looking matter and nausea is frequent at this stage. After a period of from five to seven days, this state of matters as suddenly ceases as it began, most usually by crisis. The temperature falls to the normal point, more often below it, the pulse sinks in the number of its beats correspondingly, the headache ceases, the intense thirst disappears, appetite returns, a profuse sweat literally bathes the patient, and naturally the urine now becomes scanty, while slight diarrhœa at times sets in. And, again, when the patient believes himself perfectly well, and laughs to scorn his doctor's prediction that he will have another attack, about the twelfth day, more frequently on the fourteenth, dating from the first day of his illness, he has another slight chilly feeling, it may be sickness and vomiting, then the increase of heat, which may even surpass the degree attained in the former paroxysm, the same acceleration of the pulse, increase of urine, and thirst, and again ending in three or four days by a sweat even more profuse than on the first occasion, and this time almost invariably accompanied by an abundant crop of sudamina all over the body, but more particularly over the abdomen. Another week of apyrexia succeeds, and rarely another paroxysm sets in, lasting this time only, it may be, for one or two days, or even half a day. When the first attack is protracted beyond the week to ten or twelve days, the apyretic stage usually is ushered in by a lysis, and the temperature does not sink more than one or two degrees below 98°, and frequently these cases have no relapse. Of course it may fairly enough be objected that this is not a case of relapsing fever at all, but a case of simple continued fever, or of synocha, though other symptoms may indicate its closer alliance to relapsing than to any other form of fever. Anticipating this objection, I have not included among the cases of relapsing fever those which did not present a distinct relapse, but have styled them cases of simple continued fever.

Going a little more into details, I remark concerning—

1. *Integumentary System*, that as a whole, in the majority of cases, it presents a slightly yellowish tint or "bronzed" appearance, as Dr Cormack described it. At times it is actually yellow, jaundiced, and that too very deeply, and the conjunctivæ are distinctly tinged yellow. Towards the end of the first paroxysm the face becomes very red, and even purple. To the touch the skin feels pungently hot. As to any

a. *Eruption*, I have failed to meet with it in any case of undoubted relapsing fever, though carefully watching for it. In one instance—which, however, I have not reckoned among those of relapsing fever, because the man left before any relapse took place, but which, at the same time, from the symptoms presented, I regarded as a case of protracted relapsing fever, lasting nine or ten days,—in this instance there certainly was an eruption of rose-coloured spots over the abdomen and back, rather larger in size than those usually observed in typhoid fever, but precisely of the same rosy hue, slightly elevated, which disappeared on pressure, and which, from their position and appearance, I regarded as the result of congestion of the capillaries of the papillæ. Since writing this, I have met with an undoubted case of relapsing fever, where there appeared on the fourth day of the fever a profusely copious rash over the whole body, even on the soles of the feet. In character it presented the appearance of measles rather than of typhus. It was of a rosy hue, distinctly papular, elevated considerably above the skin, and the colour faded on pressure. It lasted three days, and was visible for one day after defervescence. In the relapse, no spots were to be seen; but on the day of crisis, a few red papules of small size were noticed on the wrists and back of the forearms, which quickly disappeared. Next day a few stigmata, not unlike the isolated congested follicles observed in scarlatina before the rash becomes diffused, were seen on the chest and abdomen. These, also, only lasted one day. In neither case was there any desquamation nor any pigmentation.

But in very many cases I have observed a very marked prominence and erection of the hair-follicles, especially over the abdomen and thighs, during the paroxysm. This is not only visible to the eye, but on passing the hand over the skin a peculiar sensation of roughness is perceived, in some cases so striking as to suggest the impression conveyed when passing the fingers over fine emery paper. This arises, no doubt, from the hyperæmic condition of the cutis vera, or more probably from the action of the poison of the fever upon the nervous twigs which supply the individual papillæ; very possibly the combination of these two causes produces this appearance. For although the skin does not present a uniform redness, such as one might expect were the papillary network of capillaries in a state of active congestion, yet this very appearance of congestion is observed on the face, particularly to the end of the first paroxysm, when it sometimes even becomes livid. And further, that the follicular network of capillaries, as distinct from the horizontal network beneath the cutis, is at least partially congested, is evident from the fact that minute papules are here and there met with over the abdomen, the result of swelling of the hair-sacs and sebaceous glands, precisely similar to what one observes in scarlatina papulosa. These undergo still further development, become vesicular on their summit, are filled with a transparent or slightly opalescent fluid, which may ultimately become of a more yellow or even puriform character. These of course are few and scattered, and are by no means uniformly met with. All this time, during the first paroxysm, no moisture is to be seen on the skin; but as soon as the crisis sets in, this abnormal state of the glandular apparatus ceases, the obstruction of the efferent ducts of the sudoriferous glands, whatever it may precisely have been, is removed, and the sweat which has been for so many days arrested pours out over the whole body, to the great relief of the patient. Coincident with this profuse sweating, great prostration usually sets in, but I do not believe that the two stand in any way related to each other as cause and effect, as one might be at first disposed to imagine. With the second paroxysm, this same state of congestion and suppression of the sweat again appears, and with the crisis the sudoriferous ducts again become patent, and pour forth the sweat in still greater abundance than formerly, and are in fact incapable of transmitting all the fluid which is so abundantly secreted by the whole network of capillaries in and beneath the skin, so that it emerges around the sweat-ducts, collects beneath the epidermis, lifts it up, and appears in the form of small clear vesicles or sudamina. This was an almost constant accompaniment of the second crisis, seldom or never with the first.

Herpes of the face, ears, and neck occurred in four or five cases after the paroxysm was over, and during the remission. It did not last long, speedily dried up, and left black crusts, which persisted for a week or ten days.

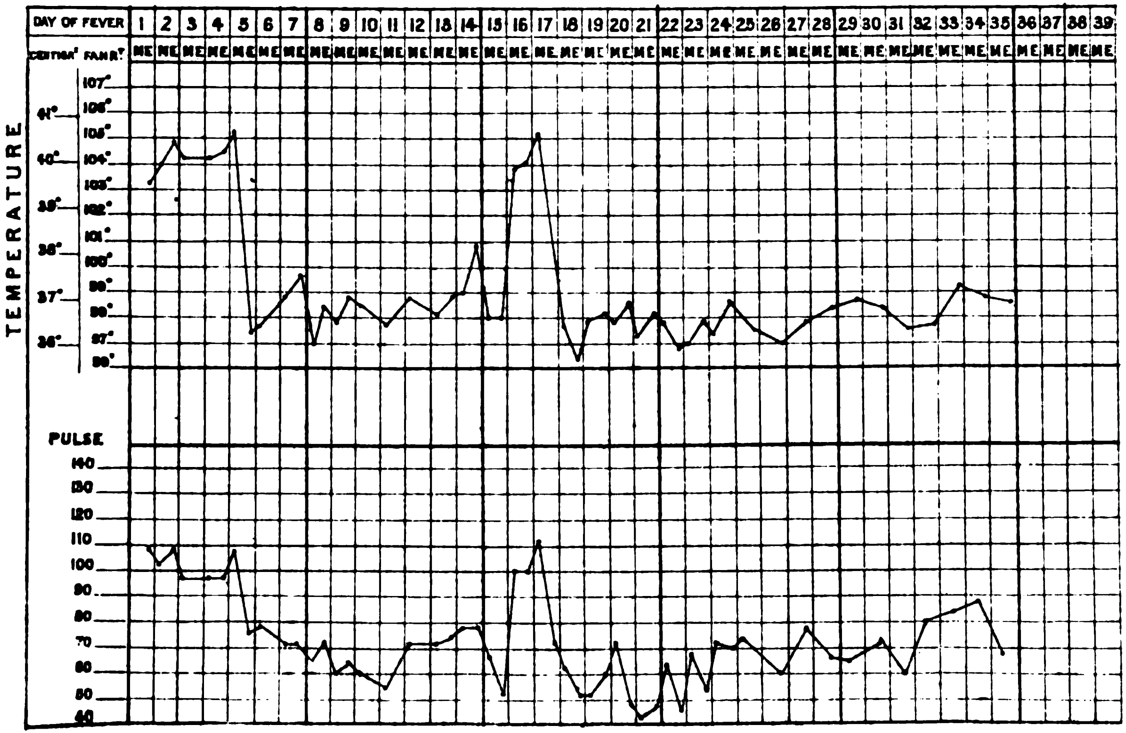
In one case, after the first paroxysm, complete desquamation of a furfuraceous character took place over the whole body, but most markedly around the neck and over the upper portion of the thorax.

b. *Odour of the Skin.*—In many cases, if not in all of them, the skin emits a distinct and characteristic odour. This unfortunately is not easy of description. I cannot say that it reminded me of burning straw; but in the individual who offered an example of it in its most intense form, it suggested the smell peculiar to mice in a concentrated degree, approaching more nearly to that evolved from a menagerie where monkeys predominate.

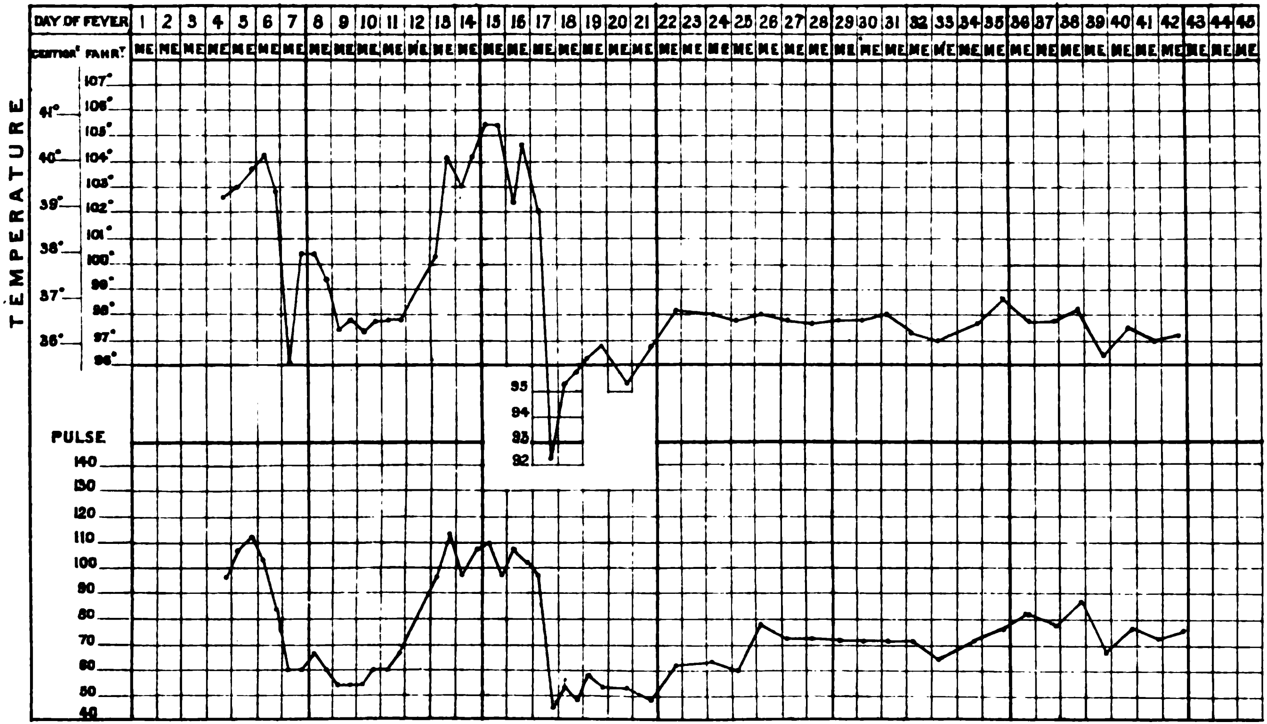
c. *Temperature of the Skin.*—This is most remarkable, and most characteristic, I might almost say pathognomonic, of this form of fever. Within an hour or two after the first sudden onset of the attack, even while the patient still complains of the subjective symptom of chilliness, the temperature, as registered by the thermometer in the axilla, shows an increase of from four to six degrees Fah. above the normal temperature. I had the opportunity of seeing three patients on the first day of their attack within a few hours after they began to complain of headache, and their temperatures when registered were respectively 102·2°, 103·2°, and 104·2° Fah.

During the first Paroxysm, it ranges from 102°, the lowest point observed, to 106·2°, the highest point noted. The evening temperature is usually higher than that of the morning, by from one to one and a half degrees. On the third day of illness, however, this increase in the evening temperature is not observed so persistently, but more frequently it *falls* below that of the morning, or registers the same point. On the fourth and fifth days it observes the same

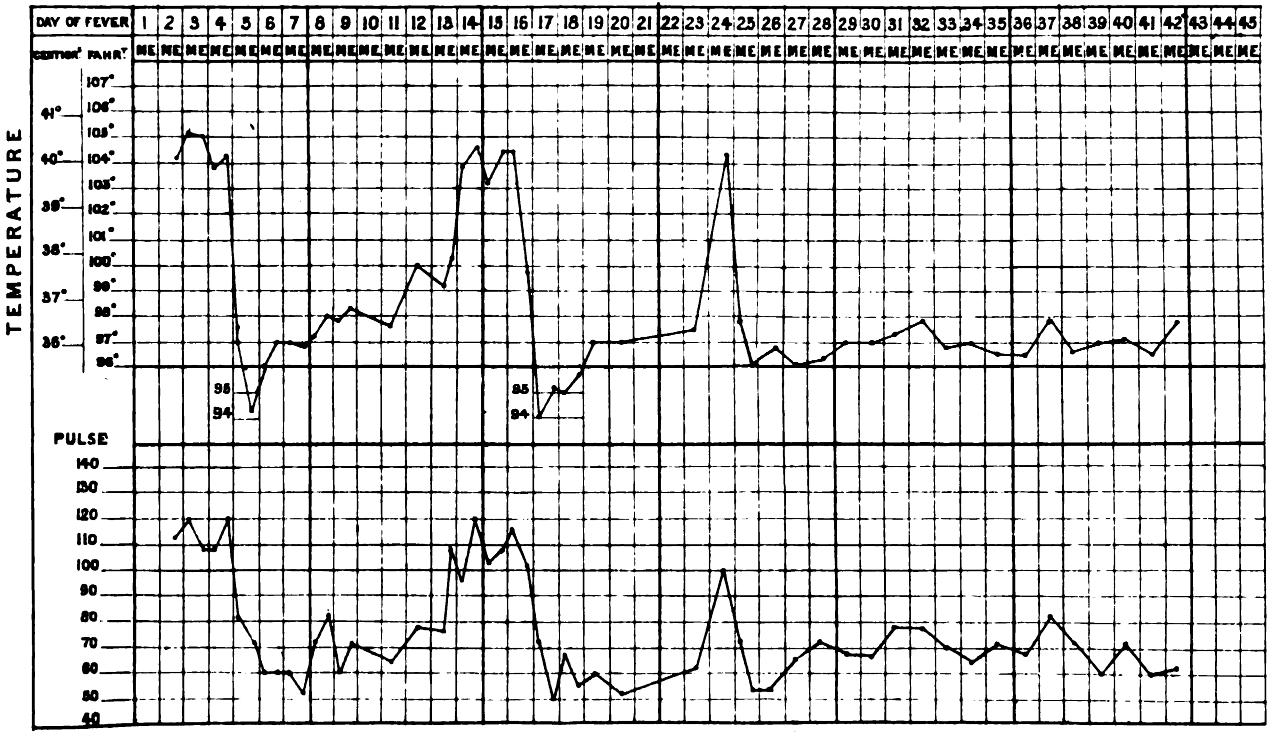
TEMPERATURE & PULSE CHART OF LAD AGED 16, SUFFERING FROM RELAPSING FEVER.



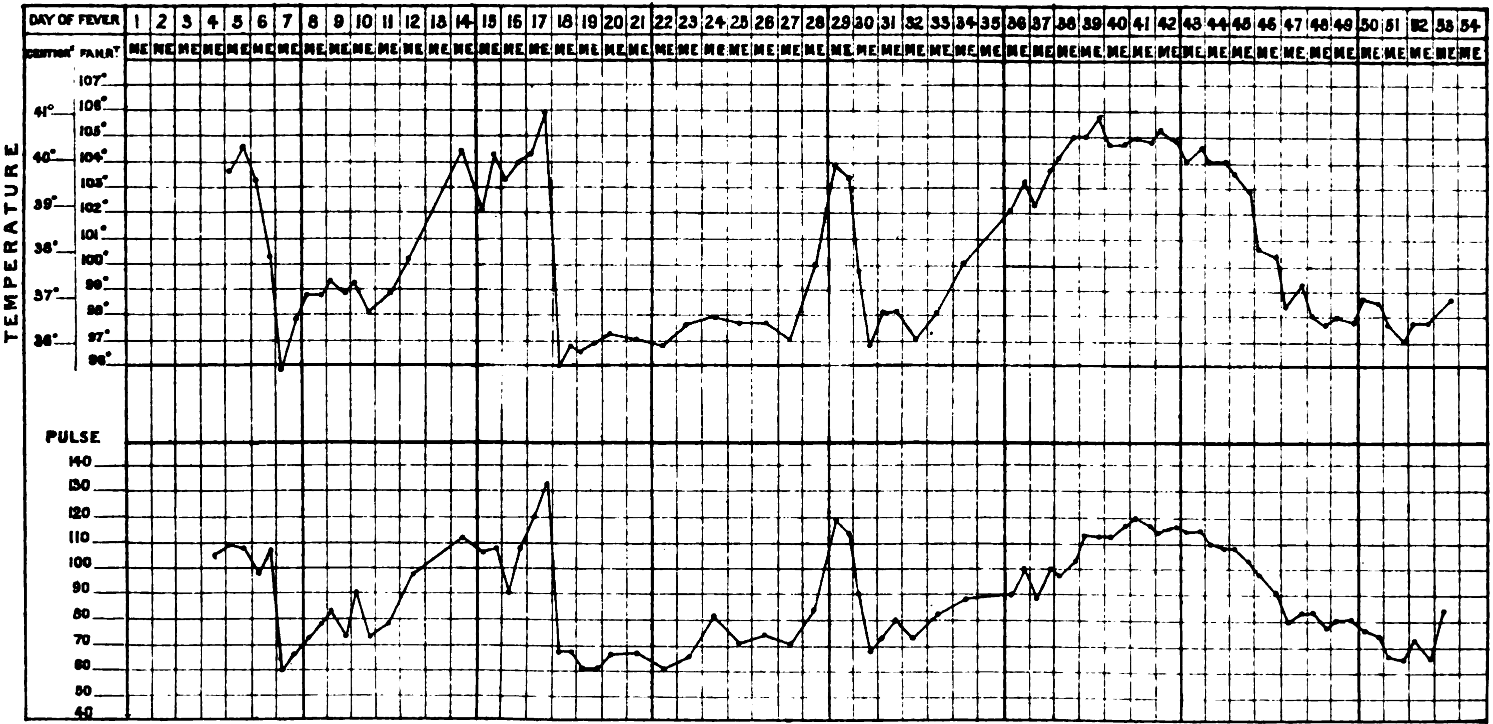
TEMPERATURE & PULSE CHART OF A LAD AGED 17, SUFFERING FROM RELAPSING FEVER.



TEMPERATURE & PULSE CHART OF A LAD AGED 15, SUFFERING FROM RELAPSING FEVER.



TEMPERATURE & PULSE CHART OF A LAD AGED 17, SUFFERING FROM A RELAPSING FEVER, & AFTERWARDS OF TYPHUS FEVER, BEGINNING ON THE 34TH DAY OF ILLNESS.



relation as at first; and having attained its maximum height, between 104° and 105° in the average of cases, on the fifth to the seventh day, the temperature suddenly and rapidly sinks to a point about two degrees below the normal standard, in the course of twenty-four hours, thus presenting a range of temperature of from eight to nine degrees, sometimes even ten or eleven degrees Fah. Such a remarkably sudden fall, such rapid fluctuation in one day's temperature in the human subject, is probably unique. It is unparalleled in any other disease, and may be considered diagnostic of relapsing fever.

During the Apyretic Stage the temperature gradually mounts up until it reaches the standard of health, assuming it to be about 98·4°, the morning and evening preserving the same relation to each other as was observed during the first pyrexia. Some time after the remarkable fall which marks the crisis, the temperature makes as sudden a bound upwards, though by no means to the same extent, possibly to about a half of the fall on the average, as if nature resented this interference with her usual ways, and thereafter *gradually* sinks to about one degree below the normal point. This state of matters continues for about a week, when again, usually from the twelfth to the fourteenth day,—

First Relapse.—It makes another sudden bound upwards of from 3° to 6°, the evening still exceeding the morning in height, while usually, though by no means invariably, the evening of the second day of this relapse exhibits a decline below that of the corresponding morning; only, however, to be made up for by a still further rise the next day, the maximum temperature of the relapse in the majority of instances exceeding that of the first paroxysm. Having attained the maximum usually in four days (the highest point noted in the relapse was 106° F.), the temperature once more sinks rapidly to a point two, three, four, even six degrees below the health-range. The lowest I ever noted in the first relapse was 92°, and in this case the temperature fell no less than 13° in twenty-four hours. The lad said, on being questioned as to his sensations, that he did not feel chilly or cold, though his body felt cool to the touch, and his breath was also cool. He was well covered with blankets, and had a glass of hot grog given him. He was bathed in perspiration.[1] Another lad, whose temperature fell 10° in one day, felt decidedly cold, shivered, and, to the touch, was chilly. He had to get hot bottles put round him, besides the hot toddy inwardly.

[1] This is the lowest temperature that I have ever witnessed in man, with the exception of one case of collapse, resulting from opium-poisoning, in which instance the temperature (in the vagina) was only 89° F., while in the axilla it was 92°. In the collapse of relapsing and intermittent fever, it is stated that the internal temperature is much the same as that of the external temperature. As a rule, it may be stated that, when the temperature begins to rise, the internal temperature (as ascertained from the rectum or vagina) rises much more rapidly than the external, while, in the decline of the fever heat, the reverse is the case in relapsing fever.—(*Pribram.*)

Second Apyretic Stage.—The temperature again works gradually up to the normal standard, but this time more slowly, as the patient is usually more exhausted after the relapse than after the first paroxysm. In about a week after the crisis a

Second Relapse may take place, lasting from one to four days. Here the temperature makes its usual sudden spring of six degrees, and may fall again as many the very next day. In other cases it rises gradually, and does not attain anything like so high a point as on the two former occasions, usually not above 102° or 103°, and thereafter gradually sinks to between 96° and 97°. After another interval of a week a third relapse occasionally occurs, but I have only observed this in two or three instances. Unfortunately, at the end of the third week of the fever, a woman and a man took typhus, at the end of the fourth week another lad took typhus, and at the end of the fifth week of relapsing another lad took typhus. At first I naturally enough supposed that it was merely to be another relapse, until the presence of the eruption cleared away all doubt. For a considerable time after the last relapse the temperature keeps rather under the normal point.

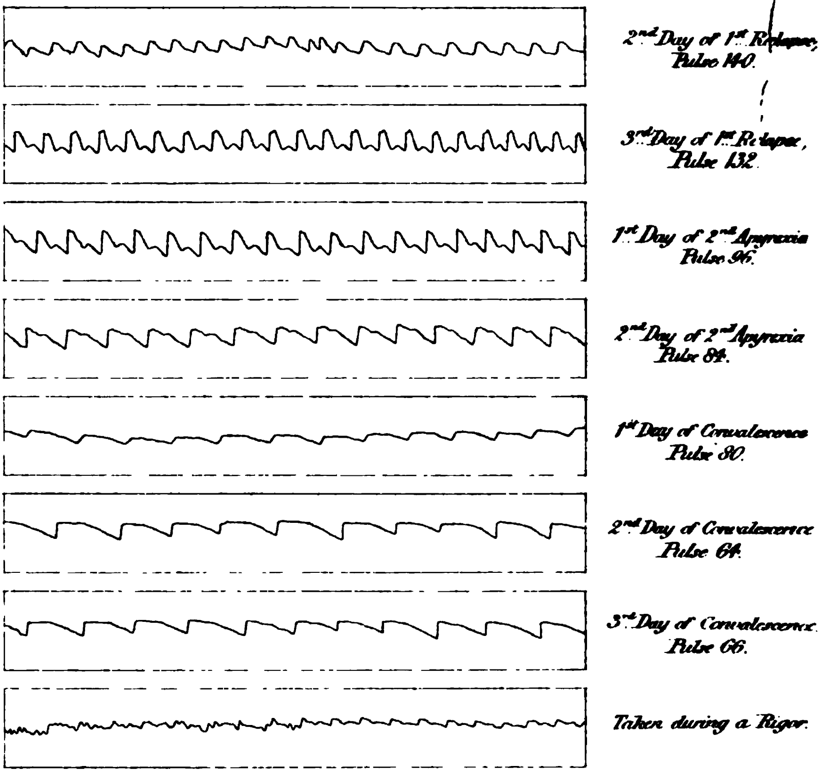
2. *Circulatory System.*—a. *The Pulse* observes very much the same series of fluctuation that we have already noticed with regard to the temperature. At the outset of the attack, in each of those three cases which were seen on the very first day, it ranged from 108 to 126. The highest number of beats noted was in a child of eight years of age, where the pulse beat 148 times in the minute. And though this is to be looked for in the case of young children, still it was not uncommon to find the heart beating 120 to 130 times per minute in men and women of the age of thirty or forty. In the remission it falls as markedly as the temperature. Thus in a lad of seventeen the number of beats fell in one day from 102 to 44, or a difference of 58 beats; this was the slowest pulse observed. In another lad of seventeen the difference was 60 beats, in another 64 beats, in the twenty-four hours. With the relapse it rapidly accelerates, rising to 112 from 65 at once, though usually this is more gradual.

Its character during the paroxysms is full, sharp, thrilling, often bounding; while in the remissions it is slow, feeble, often irregular and intermittent, and markedly dichrotic.

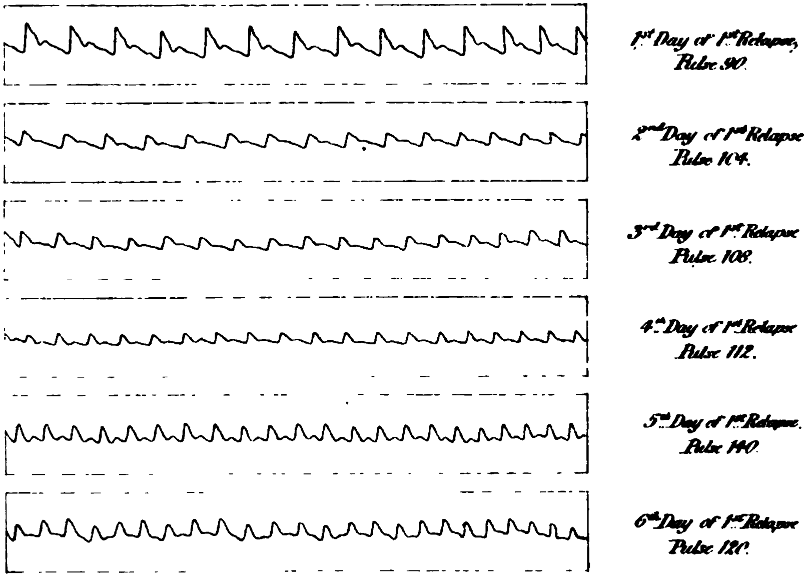
b. *Action of Heart.*—During the remissions its action is always feeble. Generally the first sound is weakened, the second appearing proportionally intensified. At times the first sound at the apex is almost inaudible, and this may last for two or three days after the crisis. At other times a distinct blowing murmur is heard at the base with the first sound, propagated into the great vessels in the neck, most probably due to anæmia. But most frequently of all, the first sound of the heart is unusually prolonged, often to double the normal time in the remissions.

3. *Digestive System.*—a. *The Tongue* from the outset presents a

SPHYGMOGRAPHIC TRACINGS OF THE PULSE OF A GIRL AGED 17 DURING FIRST RELAPSE.



PULSE OF A MAN AGED 50, DURING FIRST RELAPSE.



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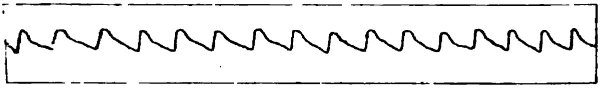
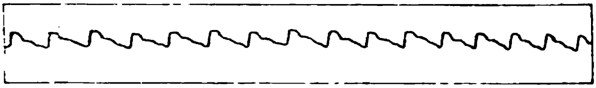
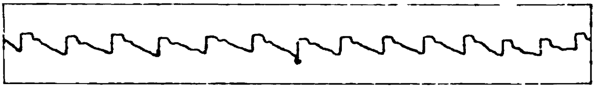


1st Day of 2nd Apyrexia,
Pulse 96.

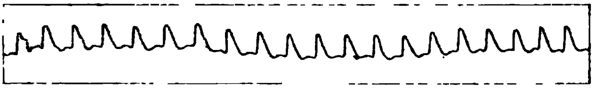


2nd Day of 2nd Apyrexia.
Pulse 92.

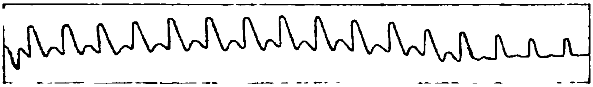


Convalescence,
Pulse 76.

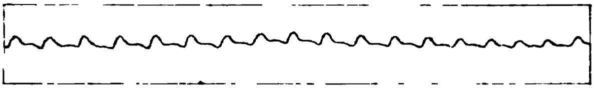
PULSE OF A LAD AGED 15, DURING FIRST RELAPSE.



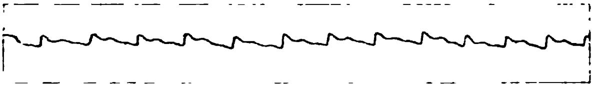
2nd Day of 1st Relapse
Pulse 124.



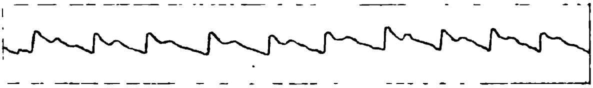
3rd Day of 1st Relapse
Pulse 114



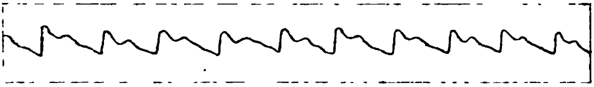
1st Day of 2nd Apyrexia,
Pulse 102.



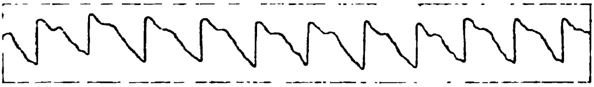
2nd Day of 2nd Apyrexia.
Pulse 76.



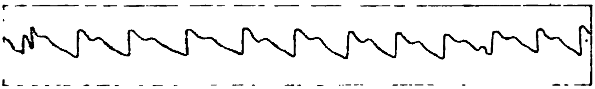
1st Day of Convalescence,
Pulse 68.



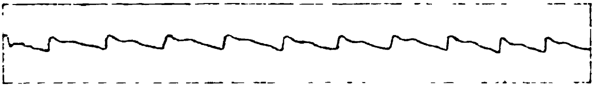
2nd Day of Convalescence,
Pulse 62.



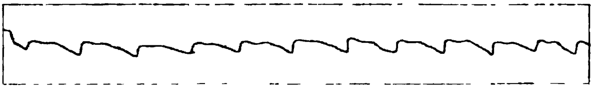
3rd Day of Convalescence,
Pulse 66.



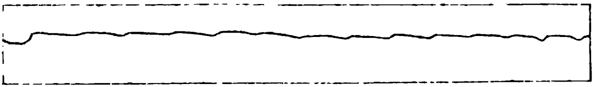
4th Day of Convalescence
Pulse 66.



Pulse of Health.



Pulse of Health.



Pulse of Collapse.

J Bartholomew Edin.

coated appearance; at times merely a slight silvery gray fur, such as is observed in persons who have continued the use of arsenic for a length of time. At other times the fur is of a denser white, while the posterior two-thirds may be thickly coated with a thick yellow layer. Where the film is thin the papillæ are very prominent, and are brought boldly into relief by the general white coating. The anterior third is in general free from this fur, and offers a decided contrast to the rest of the tongue in its peculiarly red appearance, often assuming a triangular shape; the edges of the tongue also presenting a very marked red fringe. For the most part, though thickly coated, the tongue remains moist throughout the whole illness; but not unfrequently the anterior red third becomes dry and brown. This dry-brown appearance sometimes, though rarely, extends in a central streak nearly the whole length of the tongue. In very old people, where the prostration is great, the tongue may appear dry in its whole extent.

b. *Thirst* is constant.

c. *Vomiting* is an almost constant and one of the earliest symptoms. At first merely the contents of the stomach are ejected, and afterwards a green-coloured bilious-looking fluid, the result of constant retching. In no case was there any dark-coloured matter vomited which could even suggest the idea of blood.

d. *Nausea* sometimes existed without resulting in practical sickness.

e. *The Appetite* in all these cases was entirely lost, but returned with redoubled energy in the period of remission. In no instance did it persist unaltered during the first attack. But in the secondary paroxysm it was no uncommon thing, though remarkably striking and extraordinary, to see a lad eating a hearty dinner and breakfast with a pulse at 120, and a temperature of 103° or 104°.

f. *The Bowels* were, as a rule, confined during the first paroxysm, and with the crisis slight diarrhœa set in. The stools were natural in colour, and if altered at all were darker, as if merely tinged with bile. Where jaundice was well marked then the stools were loamy-coloured, not absolutely clayey, and emitted an offensive odour.

g. *The Liver* was by no means universally enlarged, yet in not a few cases its size was very distinctly increased, as indicated by percussion. This occurred most markedly just before the crisis of the first paroxysm. An almost constant symptom, presenting itself independently altogether of this enlargement of the liver, was tenderness on pressure over the epigastrium and in the right hypochondrium, often amounting to severe pain, as also in the right iliac region. In one lad the gall-bladder was distinctly visible as a prominent bulging, and on pressure elicited an expression of considerable pain from him. It diminished in size, considerably, after an emetic had acted pretty freely.

h. *Jaundice*, in anything like an intense form, occurred merely in one case, and this took place during the first remission. The urine in this case was very dark, almost porter-coloured. In other two cases the jaundice was well marked, though less intense than in the former one. None of these three men complained more than others did of headache, neither were they particularly somnolent or delirious. The great majority of patients presented a slight reddish-yellow coloration of the skin, such as one observes in those who have been much exposed to strong sun in all weathers. The conjunctivæ were tinged yellow. These three cases of well-marked jaundice occurred in men aged about 25, 40, and 59.

i. *The Spleen* was almost always enlarged; and often when this was the case the patient himself complained of pain in the left hypochondriac region, and if not, it was most frequently elicited by pressure over the region of the spleen. In not a few instances the edge was distinctly felt under the margin of the ribs, and more than once raised a visible bulging at this point. This enlargement took place most frequently during the first paroxysm, and, though not regaining its normal size, diminished very decidedly during the remission, increasing again with the next paroxysm, though not to the former size. In many instances this enlargement remained persistent for weeks, and the patients left hospital with an enlarged spleen. The number of white corpuscles exhibited in the field, when a drop of blood was examined microscopically, was largely in excess of what one usually finds in healthy blood. In one instance, about forty white corpuscles were counted, and in another case they were too numerous to be counted. In addition to this, the red corpuscles appeared altered in character; they did not run together in the usual method to form rouleaux, but adhered to each other in irregular masses, while between these the white corpuscles stood out in prominent relief. The serum looked as if it were increased,—at any rate, there was more fluid unoccupied by blood-corpuscles than one is accustomed to see in examples of healthy blood. This may have been due to a decrease in the absolute amount of red corpuscles. And in this fluid there were also observed granules or molecules of various sizes, which swelled up a little on the addition of acetic acid, but which did not display any distinct nucleus. This condition of the blood continued only during the pyrexia. So soon as the crisis set in, the white cells rapidly diminished, and in two days thereafter no excess was to be observed.

4. *Nervous System.*—a. *Headache* is, as a rule, present in all cases of relapsing fever, and, as in other forms of fever, is one of the earliest symptoms; and, along with this, giddiness is occasionally complained of. This same lightness in the head, though possibly arising from a different cause, is also a common occurrence during convalescence. Besides the pain already alluded to as being tolerably constant in the hypochondriac and epigastric regions, muscular pains are frequent, as also pains in the joints. These latter are not usually felt till the remission sets in. But by far the most frequent complaint was of

intensely severe neuralgic pains, for the most part in the larger nerves, as the ischiatic, the brachial plexus, etc. These excruciating pains made their appearance usually the day after the remission occurred, and lasted usually two days, and often entirely abolished sleep, unless this was induced by some hypnotic or narcotic.

During the paroxysms an intense restlessness and weariness often attacks the patient, giving him no rest, as he can find no comfortable position in which to lie; while in other cases, though this is much rarer, the patient is, as it were, felled at once by the poison, and he lies perfectly prostrate, unable to help himself in any way, and passing his evacuations unconsciously below him. This I saw carried to such an extent only twice. Others were listless, fretting, and generally uneasy, but able enough to intimate their wishes, and to call for a drink. Delirium showed itself in only four cases.

But after the crisis, most of the patients were for a day or two thoroughly exhausted, unable to raise themselves; and in some of the older men this exhaustion of the nervous system showed itself by aphonia and huskiness of voice. It was at this stage also that irregularity and intermission of the pulse began to appear, and in one case this exhaustion proved fatal in unexpected and sudden syncope.

5. *Genito-Urinary System.*—The quantity of urine passed during the first paroxysm is just about the same in amount as is voided in health. But in the second paroxysm it is greatly increased, as a rule; in some cases, particularly on the day before the crisis, the patient will pass water, 6 or 7 ounces at a time, every hour, sometimes twice in the hour. In one case only was it accurately measured, and the amount passed in twenty-four hours was ℥84. When crisis fairly takes place, this desire ceases in great measure, and if collapse occurs, there is almost absolute suppression for the space of a day, more or less, the water being got rid of by the skin.

I regret that I have not been able to make any quantitive analysis of the urine in these cases, as my time was otherwise fully occupied in looking after the patients, and as in the fever wards we have not the assistance of clinical clerks to aid in the taking of cases. But I am in hopes that I may yet be able to overtake this, should any more cases present themselves at the hospital. In the meantime, I must content myself with giving you such particulars as were gathered from the usual hurried clinical examination of urine.

The Uric Acid was much increased during the paroxysms. A single drop or two of nitric acid let gently down the side of the test tube immediately gave a thick cloud. After standing some time, a precipitate fell, which on microscopical examination proved to be crystals of uric acid. Boiling the urine gave no precipitate.

The Chlorides, as in most other acute diseases, were much diminished, giving a mere trace during the paroxysms, and in the apyretic stages were largely increased, and during convalescence exceeded the usual amount in health.

Albumen was present to a small extent—about 1-8th in 4 cases—though it ought to be stated that the urine of all the 40 was not tested for it. One case was the one which ended fatally, and his kidneys presented nothing very abnormal at the sectio. In all the cases where jaundice was at all well pronounced, bile-pigment was found in the urine in large quantity; and I believe, from the appearance of the urine, that in all cases where that peculiar "bronzed" countenance appeared, bilirubin might readily have been detected by means of chloroform, which takes up very minute quantities of this colouring matter.

In the urine of convalescence and of the remissions, the indican or blue colouring matter, present in small quantity in the urine of health, was found largely increased, as it usually is where there has been much nervous excitement or disturbance.

As a rule the urine was acid, sometimes highly acid, with an average specific gravity of 1018.

In convalescence there often appeared deposits of oxalates alternating with uric acid crystals.

As to the *Complications*, the only one of much consequence which made its appearance was pleuro-pneumonia, engaging about a third of one side. But I am not at all sure that this did not exist before the lad was attacked with the fever; for it was there when he came into hospital, and he came in the very first day of his illness, and he went out with it in the same state. He returned in about a fortnight after being discharged, complaining greatly of the pain in his side. I took him in again, blistered his side, fed him well, gave him cod-liver oil, and after a residence of another three weeks in hospital, he was sent to the Convalescent House, still much in the same condition as when he first came in.

Bronchitis was not an uncommon occurrence, but it yielded readily to simple measures taken against it.

The only other complication was epistaxis. This occurred in two patients only,—in one to such a limited extent as to call for no treatment; in the other it was very severe, and occurred in a lad of 17. He had been dismissed from hospital, after a long residence there of five or six weeks, quite well. By an unfortunate chance, the day on which he was discharged happened to be a very snowy one. He, boy-like, was unable to resist the snow-fever, and, with some of his companions, began to throw snowballs pretty vigorously about, and probably amongst some passers-by. Anyway, he was caught by a policeman throwing snowballs, and for this offence was marched off to the police-office, to be brought before the magistrate on the following Monday, this being Saturday. He was duly charged, tried, and sentenced to be fined, or suffer three days' imprisonment. The latter alternative he elected. Meanwhile, during his detention in the police-office, as he told me, he received for his meals "a bap and a drink of milk three times a day." The day after he was discharged from the police-office, he came into the Infirmary. He was then shivering when I saw him, excited and hysterical, and felt intensely weak and miserable. His body was covered with petechiæ and stigmata. The hair-follicles on the legs and arms were all distinctly and individually marked out by a ring of congestion. He had a desire to eat, but could not when food was given to him. Next day he complained of his head being sore, and his nose bled freely two or three times, which, however, was always controlled by the application of cold. The petechiæ on the legs and arms had run together here and there, and formed large ecchymosed spots, some of them the size of a shilling. He continued to feel restless, uneasy, and complained of a bruised sensation all over his body. Injection of ergotine was ordered if the bleeding returned again. Next morning very severe epistaxis again came on. Cold was applied, and the anterior nares plugged with a pledget of lint soaked in perchloride of iron, and ice was given him; but bleeding still went on down the posterior nares. Subcutaneous injection of 3 grains of ergotine was given, and the bleeding immediately ceased, and there was no more return of it till next morning, and then only a few drops appeared. The ecchymosed spots diminished in size and faded greatly, and ultimately disappeared in a few days. This lad had also a pneumonia, chiefly confined to the posterior bases of both lungs.

As to *Sequelæ*, the principal were enlarged spleen and neuralgia, already referred to, conjunctivitis and ophthalmia, swelling of the glands in the groin and neck and parotid, inflammation of the ear with purulent discharge, anæmia, œdema of the legs, and a partial paralysis of the legs and arms lasting for a few days only. Iritis was met with in no case.

III. *Treatment.*

This was for the most part expectant, except where there were plain indications demanding interference. The experience of former epidemics held out little encouragement as to the possibility of checking the fever, or of preventing a relapse. Yet my colleague, Dr Fraser, and I both resolved to make another attempt with those remedies which are in repute as specifics in cases of intermittent fever; and, in addition to this, I also endeavoured to follow the indications given by nature in her apparent endeavour to get rid of the poison, whatever it might be.

Thus, the first method by which nature seemed to attempt to eliminate it was by vomiting. Accordingly, I took this hint, and gave an emetic. This certainly promoted vomiting, and gave relief to the patient, who had been ineffectually attempting to empty his stomach; but it did more—it emptied to a certain extent, th not completely, the gall-bladder, which was distended, and duced a visible prominence in the abdominal wall. But mor this it did not do; it neither cut short the fever, nor rendered the paroxysm less severe.

Another method of relief was attempted, much believed in and enthusiastically carried out by my late much-valued assistant, Dr Edwin Thompson—viz., cold packing. Now, though this certainly did give, in some cases, unquestionable relief to the patient, chiefly I think by inducing a gentle action in the otherwise dry and hot skin, and actually lowered the temperature for about one hour by about 1° Fahr. (though this was not an invariable rule), and also diminished the frequency of the pulse, still very speedily the temperature and pulse regained their former height, and the process had again to be gone through. The effect of this constant changing of packs, wet sheets, and cold douches was, as was only to be expected, greatly to fatigue the patient, and to induce, ultimately, greater prostration when the crisis came, than might otherwise reasonably have been looked for. This treatment in no way shortened the duration of the attack; but this much I must allow that it did, it relieved the subjective symptoms greatly. The patient, notwithstanding the fatigue necessarily incurred in its application, almost invariably expressed himself as feeling great comfort from it, saying that it relieved the pain in the back and head; and often the patient enjoyed a refreshing sleep of some hours after its employment. Another disadvantage of it was, that it induced still more copious sweating when the crisis arrived, possibly by having weakened the tissues of the skin still more; for in no case did I see so copiously profuse an eruption of sudamina as in one man who had been most assiduously packed and douched. In him the sudamina ran together, and formed small blebs, one of which measured ⅝ths of an inch long by ¼th inch broad. In this case the reaction of the sweat was neutral. On the whole, then, I would not be disposed to treat a patient suffering from relapsing fever hydropathically, for these reasons.

Sleeplessness, and the intense agony caused by neuralgia, were readily overcome by the use of chloral in appropriate doses, without in any case a bad effect resulting. Once or twice it was vomited, which was due entirely to giving it in too undiluted a form. When this was remedied, it was invariably retained.

To prevent relapses we tried quinine alone, by the mouth, and subcutaneously as acetate of quinoidine; in combination with iron and with nux vomica. Arsenic in large doses I also gave, and nux vomica combined with iron in large doses. The result was in every case the same; they did not prevent a relapse.

In one lad, to whom I gave upwards of 70 grains of quinine combined with 4 grains of extract of nux vomica, during three days previous to his expected relapse, I thought that I had actually succeeded in aborting the threatened relapse; for, true to the fourteenth day, the temperature in the evening marked an increase of 2° Fahr. above that of the preceding evening; the pulse was only raised by a few beats; but on the next morning, that of the fifteenth day, the temperature had fallen again to 98°, nearly 3° lower than that of the previous evening; which low state of thermometer was maintained all day, and marked the same at night. The pulse, too, fell 26 beats. But next day matters were entirely changed, and the temperature made a bound upwards of nearly 6°, and the pulse 48 beats. It is right to mention, however, that the large doses of quinine were stopped, and on the fifteenth day, the day on which the temperature fell below the normal point, 98°, he only took 7½ gr., and after this no more. It therefore remains a matter of speculation whether, if those large doses had been continued, he would have escaped a relapse with nothing more than an indication of it for one day.

In another case, Dr Fraser began to give a man quinine in increasing doses on the twelfth day of his illness, the immediate effect of two doses of 5 gr. each being to reduce the temperature 2°, and the pulse about 12 beats. Next day, the thirteenth of his illness, he took 20 gr. in all, with 4 oz. of brandy and a pint of Bass's ale, the indication for which was the weakness of the first sound of the heart. The pulse and temperature remained pretty steady all day at 60 and 98° respectively. On the fourteenth day of illness he expressed himself as feeling quite well in the morning, with the exception of noises in his ears, and he felt very hungry; pulse and temperature remained steady at 60 and 98°. He took 40 gr. of quinine. Next morning, the fifteenth day of illness, the pulse was very soft but regular, 46 per minute; the first sound of the heart was almost inaudible; the noise in the ears was gone, but he had become deaf; and a copious rosy papular eruption had appeared over the arms and thighs, which was slightly itchy. His temperature was 98·6°. In the evening his pulse was 84, and his temperature 103·6°, thus exhibiting a rise of 38 beats and 5° respectively. He again took 40 grains. Next day his pulse and temperature both rose slightly, and the man was sick, dull, and giddy. He took no more quinine. Thus, in this case, quinine was given till cinchonism was fairly produced in all its forms, without having the slightest effect in preventing a relapse.

It was tried again in one or two other cases with like result, only the patients strongly objected to it on account of its nauseousness.

To get over this, and believing that by so doing I might bring the system more speedily under the influence of the drug, I injected subcutaneously a solution of acetate of quinoidine, gr. xv., in the course of the day. I selected this preparation as it is one of the most readily soluble of all the cinchona salts. I injected this for the first time on the eleventh day of the man's illness. The only effect of this treatment was to make the man feel stronger, and to give him more energy. The pulse and temperature, though noted at intervals of three hours, presented no change worthy of remark. Next day, the twelfth day of disease, the pulse and temperature remained pretty much the same as on the previous day; but in the evening the pulse rose 16 beats, and the temperature a degree and a half. The pulse, however, was fuller and stronger, and was regular, without intermission: other gr. xv. were injected. On the following day, thirteenth of illness, the man expressed himself as feeling stronger, and no longer needing to hold on by furniture when having occasion to rise. He was eating well. Other gr. xv. were injected. The pulse this day, while strong and full, occasionally intermitted, and the stools presented a loamy appearance. The pulse in the morning fell a few beats, and the temperature declined 1·2° Fahr. from that of the preceding night. In the evening the pulse rose 16 beats and temperature 2½° Fahr. I ceased to inject any more. This too proved a failure; the relapse had fairly set in, went through its course, and ended by a lysis in this instance.

The same result attended an attempt to stay this inevitable relapse in another case, by large doses of arsenic given in doses of 20♏ of liq. arsenicalis thrice daily for two or three days before the expected relapse.

In the meantime, then, the only treatment which is of any avail is that which is called for by the urgency of the symptoms which may present themselves, no drug having yet been lighted on which can stay the progress of this disease.

I have thought it necessary to go a little minutely into the results of treatment with quinine in this disease, because I have seen it repeatedly stated that, by the administration of it, the relapse was prevented. And as this statement has emanated from so trustworthy a quarter as St Bartholomew's Hospital, it demands some attention. It was stated[1] that in that hospital "three cases of relapsing fever admitted into hospital had been treated with large doses of quinine immediately before the anticipated relapse. Two cases received each 10 gr. in the afternoon of the thirteenth and morning of the fourteenth day of the fever, and 5 grains for four succeeding mornings. The third case had one 10-grain dose on the thirteenth day, followed by four 5-grain doses. The results were most satisfactory, as in none of the patients thus treated did the relapse occur. As yet there has been no opportunity of treating others in the same way. No other patients have been treated with quinine." Now, this is probably a unique result; and it would be extremely satisfactory to learn if, after the lapse of three or four months, any opportunity has presented itself of treating others in the same way, and if any other patients have been treated with quinine; but most interesting of all will it be to hear the result. I do not mean for one moment to call in question the accuracy either of the diagnosis or of the report of the cases given. I believe that they were true cases of relapsing fever, but that in all probability, in each of the three cases, this was already the relapse for which the patients applied for treatment and admission into hospital.

[1] British Medical Journal, February 26, 1870.

Reading the reports in this light, all discrepancy between the results of St Bartholomew's Hospital, obtained from the use of quinine in relapsing fever, and that of the Edinburgh Hospital vanishes. Add fourteen to the day specified in the report as the day of the disease, and you will find nothing more on the twenty-eighth day, or the occasion of the second relapse, than was to be expected—viz., an increase of pulse, with slight increase of temperature, merely indicating the period at which the second relapse *ought* to have shown itself, and the good effects of quinine are reduced to *nil.* Every one who has had any experience of hospital patients, knows how extremely difficult it is to get them to fix the precise date of the beginning of their illness; and in a complaint such as relapsing fever, one is particularly apt to be deceived, unless very minute and searching questions are put to the patient; and even then the replies are far from satisfactory. This I believe to have been the case in those patients at St Bartholomew's, in whom the relapse was stated to have been successfully warded off.

IV. *Pathology.*

Only one death has resulted from relapsing fever, and this was in an old man of 59, and this implies a great age for a labouring man. The valves of the heart were atheromatous and thick at the apices, and slightly incompetent; but no murmur was detected during life. The heart's action was irregular and intermittent. In him nothing was found anatomically to account for death. Our only conclusion, then, as to the cause of death, was sudden syncope. He expressed himself half an hour before death as feeling very well, and the only note made at the visit concerning him was, that "the pulse was very intermittent, and the chest full of gurgling and wheezing." On section, the lungs were found congested and œdematous. But the most noticeable fact regarding any of the organs was the condition of the spleen. It weighed 13½ ounces (nearly double the average weight of what is regarded as a healthy spleen), and was deeply congested; but it was not anything like so diffluent and pulpy as is usually the case in typhus fever. In fact, it was of firm consistence, and was stuffed with clots and coagula. The liver and kidneys were fatty, and the latter were also slightly amyloid. Such was all the information we gathered from the inspection of the various organs of the body after death from this peculiar disease; and it does not help us much to come to any conclusion as to the pathology of the disease.

I refrain from offering any theory as to its pathology, as I feel that I have no well-substantiated one to lay before you, and believing that any unsupported hypothesis would tend merely to weaken the value of the facts which I have attempted to put you in possession of.

And now I have done, and desire to thank you for the indulgence with which you have listened to my somewhat prolonged paper.

ARTICLE II.—*Case of Puerperal Tetanus, coming on Nine Days after Parturition, and terminating fatally in Forty Hours.* By WILLIAM CRAIG, M.B., C.M., L.R.C.S.E.

(*Read before the Edinburgh Obstetrical Society*, 23d *February* 1870.)

IN the "Edinburgh Monthly Journal of Medical Science" for February 1854, Sir James Y. Simpson drew the attention of the profession to the fact that tetanus, though a rare occurrence in midwifery practice, was nevertheless a much more common malady than was generally supposed. In that article Sir James makes this remarkable statement:—"In none of our modern obstetrical works, nor in any of the various essays or works devoted to the consideration of abortion or puerperal diseases, is any allusion made, as far as I know, to the possible supervention of tetanus after miscarriage." After making the above statement, Sir James shows that it may occur after injury of the unimpregnated uterus, after abortion, and after labour at the full time. He there records 27 cases of tetanus occurring in women after delivery, or after injury to the uterus, but of these only about 20 occurred in Britain; and when we bear in mind that this malady was altogether unnoticed in obstetrical works, we can easily believe that "this fearful complication is fortunately a rare occurrence in midwifery practice." Since the publication of Sir James Y. Simpson's paper in 1854, several cases of puerperal tetanus have occurred in this country, and have been duly recorded. It is now my painful duty to record a fatal case of puerperal tetanus, which happened in my own practice in November last.

Mrs S., aged 37 years, native of Ireland. Had previously seven children, all of whom were born in South Australia. Her "labours" were always speedy and her recoveries good. She mentioned to me that on her seventh confinement she had retention of the placenta, but notwithstanding she made a good and speedy recovery.

The veins of her right leg were varicose, and on several occasions before her confinements one of these veins (a little above the internal malleolus) burst and caused considerable hæmorrhage. This had occurred before several of her confinements in Australia.

On the 4th of September last, I was called in to arrest the hæmorrhage which had occurred from this old wound. This I accomplished easily by means of a pad and bandage. On the 30th of September I was again sent for, to arrest the hæmorrhage from this same wound.

The next time I saw the patient was on the evening of her confinement.

On the evening of Wednesday, 27th October, shortly before midnight, I was requested to come immediately to see her, and in five minutes afterwards I was at her bedside.

On entering her bedroom, I learned that several hours previously she had been delivered of a strong healthy boy, a woman having acted as accoucheur. The placenta was still retained, although the nurse had made several unsuccessful attempts to remove it. This midwife was very averse to a medical man being called in, and only consented after repeated attempts to remove the placenta had failed.

I found the patient very weak, chiefly from hæmorrhage. The uterus was flabby and uncontracted. Having caused the uterus to contract by external manipulation over the abdomen, I very soon was enabled to remove the placenta, being careful at the same time to remove all clots from the vagina. I found, however, a large amount of coagulated blood in the bed beside the patient.

By the time the placenta was removed the patient was very faint, and I accordingly administered a little stimulant, and she soon revived. The patient passed a good night, and told me next day that she had slept well, and never was better after any previous confinement. For more than a week she appeared to be making a fair recovery. The secretion of milk was very copious; and on Thursday, 4th November, eight days after her confinement, the patient was so well that she insisted on getting up out of bed, but as her pulse was fully 80 per minute I refused to allow her. Her pulse since her confinement had generally kept above 80, and sometimes was as high as 100 per minute.

The high pulse was suggestive of mischief, but as her appetite was good, and the secretion of milk abundant, I hoped that no bad results would follow.

On the morning of Friday, 5th November, whilst she was at breakfast, she suddenly felt something wrong with her throat when swallowing some tea. She told me of this when I saw her in the course of the forenoon, but I thought she had caught cold, and told her to wrap her neck in flannel, and at the same time gave her ten grains of the compound powder of ipecacuanha.

On the afternoon of the same day, I was sent for, as she was worse; but being professionally engaged elsewhere at the time, it was several hours before I could see the patient. Meanwhile, another medical man was called in to see her, who ordered a mustard poultice to be applied to the throat. I saw her in the course of the evening, and found that the mustard ordered by my brother practitioner had produced no benefit. I found, moreover, that now she had great pain and difficulty both in opening her mouth and in swallowing. Her own idea was that the "pap of her throat" (uvula) had fallen down, and that if I could only lift it up she would be all right. Of course I knew she was mistaken, but I mention the fact to describe the patient's own feelings at the time. She could not open her mouth sufficiently to allow me to see as far back as the uvula, and she had very great difficulty in swallowing. On external manipulation, however, no pain was elicited, showing the absence of inflammatory action; in fact, she experienced pain only when trying to open her mouth or when swallowing.

Although at this time there was a certain amount of trismus, I could not bring my mind to the conclusion that it was a case of tetanus. Her bowels being somewhat constipated, I ordered her some opening medicine. Hoping it was only a spasm of the muscles produced by cold, I ordered hot poultices of bran and chamomile flowers, along with hot fomentations of the same. All these were applied most faithfully and effectually during the whole night.

Next morning (Saturday, 6th), between 6 and 7 o'clock A.M., I was sent for, as she was no better but worse, the poultices and hot fomentations, although constantly applied all night, having produced no change for the better.

I may here mention, that the patient was fully convinced that something was sticking in her throat, and she wished me to cut in and see what was wrong and rectify matters. Such was her feeling.

It was agreed by the husband and myself to call in another doctor in consultation. I accordingly went direct to Dr Patrick Heron Watson, who kindly came and saw the patient with me. She could still swallow, but with very great difficulty, and Dr Watson was unable to see the back part of her mouth, owing to the rigidity of the masseter and temporal muscles. The pulse was about 130 or 140 per minute.

After a careful examination of the patient, Dr Watson gave it as his opinion that it was a true case of tetanus. At his suggestion I ordered tincture of Indian hemp, 25 minims to begin with, and 10 minims every hour afterwards; also to continue the poultices and hot fomentations. The medicine I gave the previous evening not having acted sufficiently, I ordered a turpentine enema to be given. This had the desired effect of thoroughly clearing out the bowels. The fæces had a most offensive smell.

Notwithstanding all our treatment, the patient got rapidly worse; and after she was unable to swallow, I ordered nutrient injections per rectum, and even gave the tincture of Indian hemp in the same way.

About mid-day on Saturday, in addition to well-marked trismus, there was added opisthotonos, the longitudinal muscles at the back of the neck being the muscles chiefly affected. They were in a state of tonic spasm. I ordered the hot fomentations and poultices to be applied to the back of the neck also. All our treatment, however, proved unavailing, for the disease, which was now well marked, made rapid progress. The patient was perfectly conscious, and described her feeling as if a "ton weight was dragging her head backwards." What added greatly to the patient's sufferings was an accumulation of mucus in the throat which could not be got rid of, and which produced a sense of constant suffocation and impending death.

I will not soon forget her pitiable expression and her truly pathetic appeal to me to give her something to mend her throat.

It is indeed a sad sight to witness a patient in the midst of terrible agony and impending suffocation making an earnest and *confident* appeal to her medical attendant for relief, when the physician knows too well that "vain is the help of man" in such a case.

At this stage of the disease I witnessed an interesting but painful phenomenon. Every five or ten minutes her head was observed to jerk a little backwards, then remain stationary for other five or ten minutes, and then suddenly to jerk again backwards. This interesting phenomenon was well marked, and continued as long as I saw the patient. It had all the appearance of a screw gradually but surely drawing the occiput backwards towards the shoulders. Jerk after jerk reminded one of another turn of the screw. In short, opisthotonos was now well marked. The expression of the countenance was characteristic of the disease. The teeth were quite exposed, the angles of the mouth drawn much backwards, giving a very ghastly appearance to the patient. The "risus sardonicus," so characteristic of this disease, was in this case very distinct.

I saw her for the last time about 1 A.M. on Sabbath morning, and in two hours afterwards death terminated her sufferings, the disease having lasted forty hours. From the symptoms described to me, I believe the immediate cause of death was asphyxia.

There can be no doubt but this was a case of tetanus. In this opinion I am fully confirmed by Dr Patrick Heron Watson. The trismus, opisthotonos, exposure of the teeth, and ghastly grin (risus sardonicus), were all well marked. It was, moreover, a case of tetanus coming on nine days after parturition at the full time. Of this latter fact there can be no doubt. The deceased expected her confinement in the beginning of September, at least six weeks before it took place; and the child was much above the average in size—in fact, it was the largest new-born child I have ever seen.

There was no appearance of either peritonitis or metritis. The lochial discharge still continued to flow. It threatened to stop, but I ordered hot fomentations, and by this means it readily continued discharging. The secretion of milk continued till the day of her death. Let it also be borne in mind that it happened in Edinburgh during the cold weather of November. The patient, however, was only a few months returned from Geelong, South Australia, where the greater part of her married life had been spent, and where her other seven children were all born. It is necessary to bear these things in mind, since tetanus is a disease much more frequent in warm countries than in cold ones; but I am far from asserting that the fact of her having spent many years in the warm climate of Geelong had anything to do with bringing on tetanus in this case.

The connexion between tetanus and parturition is still involved in much obscurity. Whether or not tetanus could have been avoided had I been present at the delivery of the deceased, I am not prepared to say, although in that case I would most certainly have removed the placenta much sooner, and would have thereby saved the woman much loss of blood; or whether, had a more experienced accoucheur been called in instead of me, the result would have been otherwise, I am equally unable to state; for this must always be borne in mind, that the frequency of traumatic tetanus, of which puerperal tetanus must be regarded as a variety, bears no proportion to the extent of the injury.

Puerperal tetanus is fortunately, in this country at least, one of the rarest complications in midwifery practice, and I believe is relatively less frequent after parturition at the full time. This is just what one would expect, for in the case of abortion nature has not completed her preparations for the expulsion of the ovum. In surgical practice, tetanus is supposed to occur most frequently after lacerated wounds; and reasoning *a priori*, it is in cases of abortion where we would expect tetanus in obstetrical practice.

In regard to the causes of tetanus we know very little. Cold is often said to produce idiopathic tetanus, but how a cold comes to produce this fearful malady no man knows. We all know that tetanus sometimes follows a wound, but the connexion between the wound and that morbid state called tetanus is still an unsolved problem. We are equally ignorant regarding the causes of puerperal tetanus. In some of the cases hæmorrhage has been assigned as the cause, and in the case I have described there was much hæmorrhage, and possibly also cold; but it is very difficult to say whether these were causes or only coincidences. Certain it is that tetanus is by no means a common result of hæmorrhage. Similar observations might be made regarding most of the assigned causes of puerperal tetanus. No matter how difficult the task, we must always endeavour to distinguish between *post hoc* and *propter hoc*.

Facts are still wanting to prove the influence of temperature on tetanus in this country. The disease is much more frequent in certain warm climates than in Britain, but it has yet to be proved that in this country it is more frequent in summer than in winter. Of twenty-seven cases recorded by Sir James Y. Simpson, only one is mentioned as occurring in June, whilst several are mentioned as occurring in the depth of winter; and the case under my care happened in the cold frosty weather of November last.

There is one fact well ascertained regarding puerperal tetanus, namely, that it is exceedingly fatal. Of the twenty-seven cases recorded by Sir James Y. Simpson, twenty-two died, and five recovered. Of the five recoveries three were Continental cases, two of which at least were ascribed to cold, and thus resembled to a certain extent idiopathic tetanus, which is not nearly so fatal as the traumatic form of the disease. The other two recoveries were in England; but it has been doubted, and not without good reason, if these were true cases of tetanus. It would thus appear, that up to 1854 there was no well-authenticated case of recovery from puerperal tetanus in Britain. Whether or not there has been any case of recovery since, I have no means of ascertaining, but this I know, there have been several fatal cases since that time.

Much needs yet to be investigated regarding the pathology of tetanus. The probability is that it is essentially a disease of the nervous system, the principal seat of which is the spinal cord. It has been ascertained that the bloodvessels of the cord are often congested, and that extensive lesion exists in the substance of the cord. The gray matter is sometimes found softened and disintegrated. But the strange fact still remains, that similar lesions of the spinal cord have been observed in other diseases where there were none of the spasms of tetanus. It will be very interesting to learn whether or not any lesions exist in the nerve or nerves leading from the seat of injury to the gray matter of the cord, and what is the nature of these lesions, if any exist. It will be also important to know the nature of the influence transmitted from the periphery to the centre. Till once we know exactly what is the morbid anatomy of this disease, we can never arrive at its true etiology.

In regard to the treatment of this disease, I have not much to say. I believe our only chance of success lies in an early diagnosis of the disease, and so cutting it short by what may be called an "abortive treatment." We must endeavour to check the malady before organic lesion takes place; for, after extensive lesion and disintegration of the gray matter of the spinal cord, I believe no remedy will be of the slightest avail. Unless we can check the disease when it is chiefly functional, there is little hope for our patient. Few indeed are the cases where medicines rectify great organic lesions.

ARTICLE III.—*The Death-rate and the Diseases of Prisoners in the Prisons of Scotland.* By J. BRUCE THOMSON, L.R.C.S.Ed., Resident Surgeon to the General Prison for Scotland.

THE history of the prisons of this country forms a valuable chapter not only in the progress of medical and sanitary science, but in civilisation. The means and appliances for the promotion of health and the prevention of diseases, have been nowhere more successfully employed than in the prisons of this country during the present century. Having collected, therefore, some valuable statistics on this subject, I have thought they could not be too well known for the benefit of the public as well as the profession.

It is well, by way of contrast with our present state, to glance back at the state of matters, at the character of prisons, and the condition of prisoners, about a century ago; before the benevolent genius of John Howard, the milder legislation of Romilly, Blackstone, and others, with the influence of the Society of Friends among our Transatlantic brethren, had softened and ameliorated the spirit of our criminal law. Before this era, throughout Europe prisons were not only pest-houses of fatal disease, but pandemoniums of moral pollution, whose motto might well be over the gateways—"Lasciate ogni speranza," etc.—"Who enters here must leave all hope behind."

In 1784, John Howard describes his own imprisonment, sufferings which, we believe, awakened his sympathies in behalf of prisoners generally. He says, "I suffered the extremity of thirst, not having, for above forty hours, one drop of water, and hardly a morsel of bread." He made his appeal against the treatment of English prisoners to the Court of France and other Continental authorities, and not in vain. At home, as Sheriff of Bedfordshire, he visited the county jail, and saw scenes of misery and cruelty he had never dreamt of. Extending his observations to other jails, and gathering important information, in 1774 he was examined before the House of Commons, from whom he received a special vote of thanks for his exertions in the cause of prisoners. His observations were afterwards enlarged over the three kingdoms, and he found reformations everywhere called for.

In the latter part of last century the first great step towards the reformation of prisons as moral institutions began, and with this were introduced great improvements in the physical condition of the prisoners. These changes began after 1784, when Howard's works were published; and it is to his noble efforts we owe the present state, so honourable to humanity, and so worthy of an enlightened and Christian country.

No data exist by which we can arrive at any idea of the mortality of prisons when jail-fever raged, infecting not only the inmates, but the officials, the judges and juries of courts who came within reach of the infected prisoners; but some conception of the evils of the old system may be formed, when we notice the prevalence of a high death-rate and of virulent prison diseases, even within the last half century.

By far the most valuable paper, and the first we have upon the mortality of prisons and the diseases of prisoners, is by the late Dr William Baly, published in vol. 28 of the Medico-Chirurgical Transactions, London, 1845. In that paper Dr Baly says, "Notwithstanding the greatly improved condition of prisons, an examination of the statistics of many of these establishments shows, that the rate of mortality is much higher amongst the prisoners confined in them than amongst persons of the same age in society at large." This fact deserves the consideration of the members of our profession, the causes being such as bear upon the practice of medicine and the public health. It has not been without much dear-bought experience that we have reached the valuable results now obtained by the improved structure of prisons, adequate dietary scales, and the physical and mental discipline and treatment of the prisoners, both of England and Scotland.

In this sketch of the early history of prisons we may notice shortly that occasional outbreaks of endemic diseases appeared, leading to scientific inquiry as to their causes, and these diseases must have added much to the sufferings and mortality of prisoners. Such were, in the years 1823 and 1824, tbe outbreaks in Millbank Penitentiary, when the mortality was greatly augmented. Such also was the scurvy in the General Prison for Scotland in 1846, and in 1851 in many of the local prisons also. In Millbank and in the General Prison the outbreak of scurvy, with other diseases of debility, assumed similar characters, and, doubtless, from the same causes, chiefly a defective dietary. These visitations of disease will be more fully noticed afterwards under the head of "Prison Diseases," and are merely mentioned as probable causes of the greater death-rate in the early history of our prisons. Medical literature ought to keep before the profession these valuable lessons as to the treatment of prisoners, lest a false economy throw us back into similar errors. And now, in contrast to this sketch of the past history of prisons and prisoners, I go on to show not only that these endemic prison diseases are rarely known, but, in the improved death-rate of the prisons of Scotland, a lesson upon hygiene and sanitary science is given, worthy of the study of men of science, and entitled to be taken as a copy by the municipal authorities, who have the care of the health and lives of free communities of social men.

After these preliminary observations, by way of contrasting the past with the present state of prisons, I shall show—

I. The death-rate of the General Prison for Scotland.
II. The death-rate of the eight chief county prisons of Scotland.
III. The general death-rate of all the prisons of Scotland.

I. *Of the death-rate of the General Prison for Scotland.*

The ratio of the death-rate of prisoners having a distinct relation to the class of prisoners and their length of sentences, I must state the kind of prisoners confined here:—

a. Prisoners under imprisonment for nine months or upwards, including *female convicts* detained permanently to the end of their sentences from five years to life; *male convicts* for one year before being sent to public works in England.

b. The criminal lunatics of Scotland—a class, of course, liable to a high ratio of mortality from brain disease.

This prison was opened in 1842. The buildings were originally in use for the detention of prisoners of war, but were set aside for these purposes after the peace of 1815. They were afterwards remodelled to suit the modern system of prison discipline, and have from time to time been adapted to the changes of the systems of the day. One of the chief improvements, of a sanitary kind, has been the method of exercising in open circles instead of close cages in separation. They are now freely exercised, openly walking at respective distances from each other. The cells of the General Prison are large, containing from 700 to 900 cubic feet; the ventilation of the cells and corridors is abundant; and the heating, by the circulation of hot water, satisfactory. The drainage is upon a very sufficient scale, and the entire sanitary arrangements complete. The dietetic scales for the prisoners have, from time to time, been so adjusted as to be adequate for the support of the general condition of prisoners without being superfluous; and the results, in the absence of disease and the moderate death-rate, can compare with any public institution perhaps in Europe.

The following table, which appears in my annual medical report for 1869, gives the mortality bill of the General Prison, extending over 28 years, the whole time of its being employed as a prison. Let it be kept in mind that the following table refers to the long-sentenced prisoners of Scotland, including female convicts confined under penal servitude from five years to life, male convicts during their first year of confinement; also the criminal lunatics of Scotland.

TABLE *showing the daily average population, the number and percentage of deaths during twenty-eight years, viz., since* 1842, *when the General Prison was opened, to* 1869 *inclusive*:—

Years.	Daily average Population.	Annual Deaths.	Years.	Daily average Population.	Annual Deaths.
1842	404	5	1856	583	11
1843	278	6	1857	593	12
1844	217	3	1858	561	10
1845	233	3	1859	632	12
1846	322	7	1860	675	16
1847	332	1	1861	637	8
1848	301	5	1862	688	5
1849	363	2	1863	714	8
1850	385	3	1864	692	15
1851	306	4	1865	693	2
1852	434	8	1866	719	9
1853	459	4	1867	732	17
1854	580	9	1868	737	11
1855	498	10	1869	744	9

The daily average population during 28 years being added up, the sum total makes 14,512, while the sum total of the deaths is 215, showing the average rate of deaths per annum to be about 1·4 per cent., or 14·8 per 1000.

There have been a few liberations on medical grounds, but so few, that if part of them should be calculated as probable deaths, the death-rate would only be raised thereby a mere fraction. For the last ten years the practice of liberating prisoners on medical grounds has been given up, as the means of fit treatment in prison, and the probabilities of life, seem fully as great in prison as out of it.

II. *Of the death-rate of the eight chief county prisons of Scotland.*

This is a subject of much importance, inasmuch as locality, structure, prison hygiene, the character of the prisoners, and other circumstances, may materially affect the death-rate.

The following table gives the average daily prison population, the deaths, and the percentage of deaths, in the eight chief county prisons of Scotland for 25 years,—viz., 1844 to 1868 inclusive:—

	Average Daily Prison Population.	Deaths.	Percentage of Deaths.
Aberdeen, ...	2,000	18	0·9
Ayr, ...	2,296	39	1·7
Edinburgh, ...	11,146	96	0·8
Forfar with Dundee, . . .	4,052	47	1·1
Glasgow with Lanark, . .	15,077	175	1·1
Perth, ...	1,826	29	1·6
Paisley, ...	3,159	41	1·3
Stirling, ...	1,784	9	0·6
	41,340	454	1·1

The daily average population of these eight county prisons being added up during 25 years, the sum total is 41,340, while the sum total of the deaths is 454, showing the average rate of deaths per annum to be 1·1 per cent., or 11 per 1000.

This table shows that the ratio of deaths in the eight chief county prisons of Scotland differs materially, being lowest in Stirling and highest in Ayr. The following is the order of the death-rate:—

In Stirling, ...	0·6 per cent.
„ Edinburgh, ...	0·8 „
„ Aberdeen, ...	0·9 „
„ Forfar *cum* Dundee, . . .	1·1 „
„ Glasgow *cum* Lanark, . .	1·1 „
„ Paisley, ...	1·3 „
„ Perth, ...	1·6 „
„ Ayr, ...	1·7 „

It would be difficult to ascertain accurately all the causes which may lead to such disparity in the death-rates of county prisons. Locality is probably one of the leading causes. Stirling and Edinburgh—the healthiest—probably owe this to their high position, being so elevated as to admit of the freest ventilation. The prisons of Dundee and Glasgow are by no means so favourably situated, and the class of prisoners is doubtless of an exceedingly low grade, especially in Glasgow, where in the wynds and lanes the criminal class present the lowest grades of misery and deterioration. The influence of condition upon the life of prisoners was long ago pointed out in the French prisons by M. Villeme, in the *Annal. d'Hygiène Publique*, tome i. p. 3. It is there shown, that in the department of the Seine the mortality in the different prisons is increased in direct ratio with the wretchedness and poverty of the class of prisoners. The death-rate ranged from 1 in 40 among tolerably respectable criminals to 1 in 3 or 4 among the most destitute, diseased, and infirm. Paisley and Perth prisons have the disadvantage of being in low situations of the town. The mortality in excess in the prison of Ayr is in some measure due, no doubt, to the class of criminals whom it is adapted for; the female convicts to the extent of 100 being generally there, for some years past, during their first year of convict life.

III. *Of the general death-rate of all the prisons of Scotland.*

The whole prisons of Scotland, General Prison, county and local prisons, number 68, scattered over the highlands and lowlands.

The total prison population in all these prisons during 25 years —viz., from 1844 to 1868 inclusive—amounted to 63,291.

The total deaths during these 25 years amounted to 700, which is equal to a percentage of 1·1, or 11 deaths per 1000. A very interesting fact came out some time ago, showing the influence of a well-adjusted dietary upon the death-rate; at least, coincident with an improved dietary (the probable cause) was a marked reduction of the death-rate. I took two decennial periods by way of comparison, viz., ten years of an imperfect dietary scale, and ten years of an improved dietary scale, with the following results:—

	1844–1853.		1854–1863.	
Total average daily number of prisoners for the ten years from 1844 to 1853, and from 1854 to 1863,	27,239		23,481	
	No.	Percentage.	No.	Percentage.
Deaths, ...	335	1·23	250	1·06

The comparative death-rate shows in the above table,—

Deaths 1844–1853 of a defective dietary, 1·23 per cent.
„ 1854–1863 of an improved „ 1·06 „

Of course, along with this reduced death-rate was less sickness, fewer prisoners off work, and less loss of labour from illness,— strong arguments for a sufficient dietary.

The foregoing statistics, comprehending 28 years of the death-rate of the General Prison for Scotland, 25 years of the eight chief county prisons, and 25 years of the general death-rate of all the prisons of Scotland, give us the following results:—

That the death-rate of the General Prison for Scotland averages, for 28 years, 1·4 per cent., or 14·8 per 1000.

That the death-rate of the eight chief county prisons averages 1·1 per cent., or 11 per 1000.

That the general death-rate of all the prisons of Scotland averages 1·1 per cent., or 11 per 1000.

The above results show a considerably higher death-rate in the General Prison for Scotland than in the county and local prisons. This is explained satisfactorily when we remember that this is the prison for convicts and all long-sentenced prisoners. All the female convicts of Scotland are there under penal servitude, and have been there since the abolition of transportation. Where the imprisonments are short the death-rates will be low, and, *ceteris paribus*, where the terms are long the death-rates must rise.

The rate of mortality amongst prisoners in the Millbank Penitentiary, as given by Dr Baly, was—

During the first year of punishment,	. .	13 per 1000
" second "	. .	35 "
" third "	. .	57 "
" fourth, "	falling to	44 "

The rate rising rapidly from the first to the third year, slowly declining in the fourth and in the fifth year. It appeared that if no prisoners had been longer detained than three months, the death-rate would not have been much more than 1 or 1·20 per 1000. It is quite clear, then, that no comparison can be drawn between the mortality of different prisons, without taking into account the length of the terms of imprisonment.

The above results are quite satisfactory, for in 1853 Mr Frederick Hill, Inspector of Prisons, estimated the average number of deaths of prisoners in Scotland at 2 per cent.

This compares favourably with the city populations. In 1841—a census year, and a healthy one—the rate of mortality in London of the inhabitants (at prison ages), viz., betwixt fifteen and seventy, was 15·3 per 1000; in Liverpool it was 18·1 per 1000 living. In England in 1851, a census year, the mortality given by the Registrar is at the rate of 20 per 1000 of the ages of twenty and upwards. It is interesting to mark the comparison, or rather contrast, of the death-rate in the city of Perth—a few hundred yards distant from the General Prison—24 per 1000 being the lowest estimate of deaths in the city at the ages from twenty years and upwards.

I must add some further observations, however, on the different rate of mortality noticed *after long imprisonments*. The female convicts have already been referred to, and afford an opportunity of observing the effects of imprisonment during long periods—a subject few medical men have opportunities of observing. In the county and local prisons a few days, or at least weeks, is the average length of confinement. The female convict is under penal servitude for years. One of the results of Dr Baly's investigations went to show that imprisonment continued for two, three, or four years produced everywhere a high rate of mortality; and this has no doubt been the case in the medical history of the prisons of this country generally. I offer some facts on this point.

The female convicts admitted to the General Prison for Scotland since October 1855 amounted in all to 1091; of whom have died 53 up to the 31st December 1869. The length of time in prison of those who died was—

Under six months, ...	9 deaths.
Six months and under one year, . .	8 "
One year and under two years, . . .	10 "
Two years and under three years, . .	13 "
Three years and under four years, . .	4 "
Four years and under five years, . .	5 "
Five years and upwards, ...	3 "
Eleven years, ...	1 "

The high death-rate of these convicts under penal servitude is remarkable, being nearly 5 per cent., or 48 per 1000. The same striking difference betwixt long and short sentenced prisoners was found in the English prisons. In 1841, the county prisons of England showed a mortality of 22·7 per 1000. But in Millbank, the *third year of confinement* gave 52 deaths per 1000; while over all periods, the ratio of death was only 31 per 1000.

Here, then, a difficult problem occurs: Is this high ratio of mortality in long-sentenced criminals due to imprisonment, or to the character of the class who, no doubt of all others, suffer from destitution and debauchery?

I am at present disposed to believe that the unsound state of the constitution in the habitual criminals of the female convict class is quite sufficient to explain their high rate of mortality. No grade of criminals is so low. They have suffered *ab ovo* from degeneration —at length from early neglect, filth, low diet, impure air, and vicious habits. In fine, these *habitués* of the thieving class are the true criminal population of great cities. They return to prisons, local and central, time after time, especially after a career of crime; and although set up for a short while, are ready in a year or two to sink from wornout systems, and die in prison. The cause we leave an open question. The fact, however, is before us, that convicts under penal servitude show a very high death-rate compared with other classes of prisoners; and this explains the higher mortality, especially of the General Prison for Scotland; as also, probably, that of the prison of Ayr.

I have arranged the foregoing statistics of a quarter of a century for the information of those who take an interest in the specialty of the study of prisoners, and for the benefit of sanitary science. I should have here entered upon the consideration of those diseases most fatal to prisoners, but the length of this communication forbids this at present. In conclusion, I hold that the present condition and death-rate of the prisoners of Scotland is one of the greatest triumphs of the application of wise and humane treatment known; as well as a great result of medical skill applied to the management of large masses of men, from which some valuable lessons might be taken in the treatment of our soldiers and sailors, as well as the public health of the free populations of large cities.

ARTICLE IV.—*A few Remarks on the Construction and Internal Management of Hospitals, with a View to the lessening of Pyæmia and the spread of Contagious Diseases.* By F. P. ATKINSON, M.D., M.R.C.P.E., etc., late Surgeon St Bartholomew's Hospital, Chatham, and Royal South London Dispensary.

As regards the construction of hospitals, few, I think, will attempt to dispute that for the treatment of disease small wards containing three or four beds are decidedly the best. The arguments in favour of small wards are these:—

1. They are less draughty, and consequently less liable to cause lung ailments and complications.
2. They can be kept darker and quieter when required.
3. The temperature can be more easily maintained.
4. Nursing can be more closely attended to.
5. Privacy can be better obtained.
6. Infectious diseases have not the same chance of spreading.
7. Infected wards can be shut up with less inconvenience.

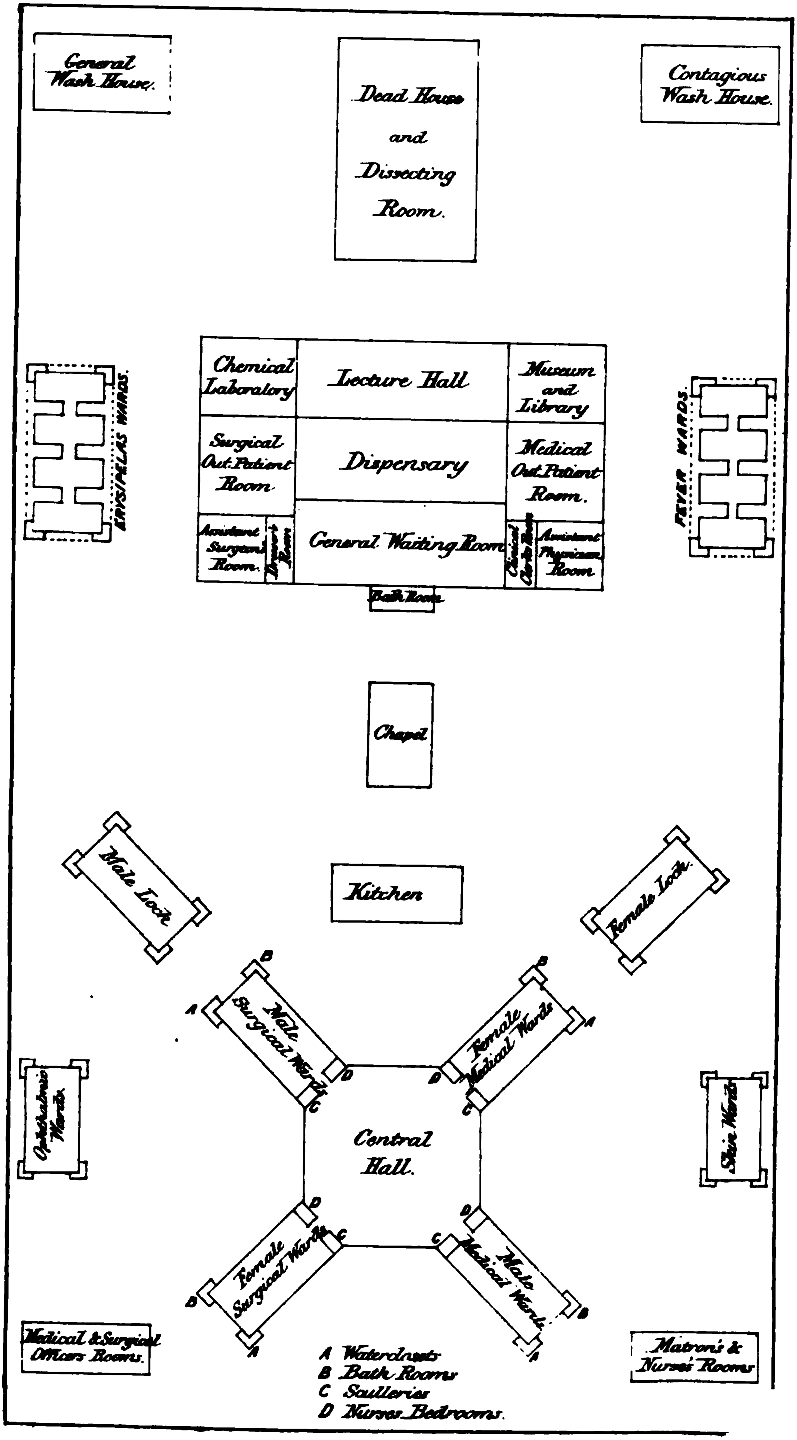
But then they are more expensive than large ones, both as regards their original and subsequent cost, and do not possess the same advantages for clinical teaching; consequently, I hold that the construction of metropolitan and country hospitals must be somewhat different. In country districts, where the number of beds required is small, and where little or no clinical teaching is required, the wards should be small, of one story high, and well separated from each other; while in towns, where the cost of land is great and the number of beds required is large, wards capable of holding about twenty beds each, and well separated from each other, seem likely to meet the necessary requirements best. The measurements most suited to wards of this latter kind are, according to Dr Chadwick,—length, 120 feet; breadth, 50 feet; height, 16 to 20 feet. The windows, which are best placed between each bed, should be about 3 feet from the floor and 1 from the ceiling. The walls should be of Parian cement; the floors of oak, with close well-fitting joints. The lamps used for lighting the building should be Rickett's or Benham's ventilating globe lights, which are so constructed as to carry off the heated and impure atmosphere. There should be open fireplaces at the end of each ward, and, if required, one in the centre. A nurse's room and scullery should also be at one end; and at the other two apartments, containing respectively lavatory and bath-room, and water-closets, urinals, and well for foul linen. Between these two apartments, and on each side of the fireplace, should be a window of the dimensions mentioned above. As regards the water-closets, the pans should be of the syphon form. They should be well supplied with water, and have a constant stream of disinfecting fluid running into them from a receptacle placed above; or it would be better, possibly, to have the patent sanitary water-closet of Thomas Begg, in which all smell is removed by means of charcoal. The ventilation should be by means of windows, fireplaces, also by gratings placed near the ceilings and upon the floors under the beds, which can be kept open or shut quite free from the patient's control. There should be iron verandas to each ward, so that those patients who are capable of being wheeled out may get the benefit of the fresh air. Lifts also should be attached, in order to facilitate the removal of patients and lessen the traffic up and down stairs. Of course, small wards should be attached to every hospital for the treatment of any special cases that may from time to time arise. The fever wards should be small, containing only three or four beds each, and connected with each other only by staircases of iron, so that they can be entirely shut off from one another when required. No drain should be allowed to pass under any part of the building. The drainage from lavatories, sinks, etc., should be discharged into vertical drain-pipes in the outer walls which run from a trap in the drain below, straight up above the roof, and end in an opening covered with charcoal.

Next comes the question as to how the several wards should be placed in relation to each other; and after reviewing the various plans proposed, I think it best to have a lofty octagonal hall in the centre, with main medical and surgical wards springing out from the alternate sides. The ophthalmic, skin, lock, erysipelas, and fever wards, should be quite detached from the main building, and so placed as to get the greatest amount of air and light. The out-patient department also should be quite separate from the rest of the building.

In order to make things more clear, I subjoin a sketch of the plan proposed. (*See Plan.*)

I would next say a few words as regards the internal administration of hospitals.

All patients before being admitted should receive a warm bath (placed in an apartment adjoining the waiting-room), and then be conveyed to their intended wards in a closed hand-carriage. All clothes should be left in this room for fumigation, and the patients taken to their respective wards in blankets belonging to the beds on which they are to be placed.


General Wash House.
Dead House and Dissecting Room.
Contagious Wash House.
Erysipelas Wards.
Chemical Laboratory
Lecture Hall
Museum and Library
Surgical Out Patient Room.
Dispensary
Medical Out Patient Room.
Assistant Surgeon's Room.
Dresser's Room
General Waiting Room
Clinical Clerk's Room
Assistant Physician's Room
Bath Room
Fever Wards.
Chapel
Male Lock
Kitchen
Female Lock.
Male Surgical Wards
Female Medical Wards
Ophthalmic Wards
Central Hall.
Skin Wards
Female Surgical Wards
Male Medical Wards
Medical & Surgical Officers Rooms.
Matron's & Nurses' Rooms
A Waterclosets
B Bath Rooms
C Sculleries
D Nurses Bedrooms.

Fever, erysipelas, lock, and skin patients, should be bathed in the rooms attached to their respective wards. Nurses should be compelled to go for their medicines to the dispensary before the admission of out-patients; and after this, none should be served out to them till the waiting-room is clear. What would be most decidedly the best plan would be to have a separate dispensary for in-patients, and have this closed just before the out-patient work commenced. Nurses belonging to the fever and erysipelas wards should have the medicines mostly required in their own wards, and communicate as little as possible with the general building. They should live in apartments separate from the rest, and their rooms should be constantly undergoing fumigation with sulphurous acid. Directly on leaving the wards they should go for a good brisk walk, in order to keep up their health and blow off infection.

No student should go directly from the out-patient room into the wards, and none of those dissecting should go about other work till their hands have been thoroughly washed in disinfecting fluid. Properly speaking, all dressing should be done in the morning before the work of the day commences. There should, in all cases, be a direct communication with the operating-room, in order to avoid the rush of students which usually takes place through the wards whenever a case of accident comes in requiring an immediate operation. In this way quiet would be better maintained, and the chances of infection (owing to students coming directly from infectious wards and out-patient rooms) greatly lessened. All dirty linen should be at once removed from the wards, and thrown down the well which is attached to the end of each ward. This should be kept well ventilated and fumigated, and the clothes removed from it night and morning, care being taken that the things belonging to contagious and non-contagious cases are kept separate and conveyed to their proper laundries. Dressings of foul wounds should be deodorized, and bags of charcoal suspended round any foul bed. All urine required for examination should be kept in closed vessels, and no utensils should be otherwise allowed in the wards. The dust from the wards and staircases should be brushed into the boxes in the walls which communicate by means of shafts with the basement. Each ward in rotation should be left vacant for three or four weeks every year, in order to be thoroughly washed, cleansed, and fumigated. This might easily be done by having one or two iron buildings temporarily erected in the grounds, and the patients changed in the following order:—ophthalmic, skin, lock, surgical, medical, erysipelas, fever.

These are the chief points as regards the construction and internal management of hospitals, and, I think, by their being attended to, the mortality and average stay of patients might be to some extent lessened.

ARTICLE V.—*Case of Intracranial Abscess following Injury successfully treated by Trephining.* By PATRICK HERON WATSON, M.D., F.R.S., F.R.C.S.; Lecturer on Surgery; Surgeon to the Royal Infirmary and the Chalmers Hospital for Sick and Hurt, Edinburgh.

ISABELLA DEMPSTER, æt. 8, was admitted to the Royal Infirmary on the 30th of August 1869.

The friends of the patient state that, in November 1868, she was struck and wounded on the forehead by a piece of road-metal thrown at her by a boy. The case was treated by the application of water-dressing until the end of December. By this time the cutaneous surface had healed. A swelling, however, began to form coincidently with the closure of the wound, for which under medical advice the forehead was poulticed. After a few days the cicatrix gave way, affording an escape to a large quantity of matter. In spite of this, the patient became gradually worse, and on the 28th of January 1869 the case was seen for the first time by Dr Macnair of Falkirk.

In a letter received from him, he tells me, "I found the girl labouring under symptoms of phrenitis, and ordered the head to be shaved, and a blister to be applied immediately. Under this treatment, with thorough purging, she gradually improved." He further states, "I probed the wound occasionally and felt the bone rough, but could never detect any opening in it, until the month of June, when the probe passed inwards for nearly an inch." After this examination with the probe, and on the occasion when the wound had previously closed, the child became unconscious and was convulsed. These symptoms were, however, at once relieved by a free spontaneous escape of matter.

On admission, the patient was observed to be a healthy child, with a bright, cheerful expression, and possessed of more than an average degree of intelligence. She complained of no pain, suffered from no headache, ate well, and slept well. Except that she was a little anæmic, and had a minute aperture over the left frontal prominence, from which healthy odourless pus escaped, there was nothing ailing her. On introducing a small-sized probe, it passed perpendicularly inwards through the skull to the depth of 2½ inches without meeting with the slighest resistance. On curving the probe, the instrument seemed to pass with the same facility in every direction to the same distance. On withdrawing the probe, a stream of healthy odourless pus escaped from the aperture.

In the course of the evening after admission she was observed to be flushed, and on inquiry complained of headache. She, however, passed a tranquil night, sleeping soundly.

31*st August.*—Patient has been up all day, has no headache, and has taken her food well.

1st September.—To-day, at the usual hour of visit, the patient was placed under the influence of chloroform. After introducing a probe and dilating the aperture by a crucial incision, four flaps of the soft parts were raised, and the operation of trephining was performed. To avoid the use of the centre-pin, a piece of pasteboard, perforated by the trephine, was employed as a means of steadying the saw crown till it "bit" upon the exposed surface of the frontal bone. When the circle of bone was removed, its aperture was found adherent to and continuous with the membranes beneath; the rest of the bone was non-adherent. The elevation of this portion of bone stripped the soft tissue surrounding the sinus from the aperture in the bone, and left it adhering to the dura mater, from which it projected like a nipple-shaped process. The probe was found to pass inwards through the aperture in the centre of this projection. A knife point was slid alongside of the probe so as to dilate the aperture of the sinus sufficiently to enable the incision to be extended crucially through the membranes to the limits of the circumference of the trephine aperture. This was attended with a copious escape of pus. After the first gush the pus escaped in pulsatory waves, and, on turning the child upon her face, a further quantity of pus escaped; in all, the pus evacuated amounted to more than a wineglassful. The interior of the abscess presented a hollowed-out aspect, of which the walls possessed an ashy colour and pappy appearance. There was no bleeding; the flaps were laid down in their position, and lint soaked in cold water was applied as a dressing. When carried back to bed she had a slight convulsive attack, which rapidly passed off.

Vespere.—The patient has been very quiet all afternoon, with occasional snatches of sleep. About six o'clock she complained of being hungry, and greedily ate some bread, and drank her tea. Her only complaint is of severe pain in the eyeballs. Pulse 108.

2d.—The patient slept soundly till ten o'clock last night, when she suddenly awoke very sick, and vomited a little, but she almost immediately fell asleep, and rested well during the remainder of the night. She now complains of slight pain in her head. Pulse 100, weak and irregular. To have beef-tea and brandy.

3d.—Patient slept quietly till eleven o'clock last night, when she became restless and moaned in her sleep. At one o'clock she was seized with a convulsive attack, which quickly subsided, but recurred in the course of an hour. During the remainder of the night she was very quiet. To-day she has no pain; there is very little discharge from the wound. Pulse 100, still weak. Wound dressed with water-dressing. Brandy and beef-tea continued. Bowels to be acted on by medicine.

5th.—Patient has progressed satisfactorily since last report. A granulating and pulsating mass has shown itself through the aperture in the skull, separating the skin flaps from each other.

7th.—The granulating mass remains of the same size as at last report; it is covered with a pappy-like substance, consisting of curdy pus.

5th October.—Since last report the granulation protrusion has gradually shrunk, the wound healing at the same time, and the discharge diminishing. The actual amount of discharge at the present date amounts to only a few drops in the twenty-four hours. A probe introduced at the aperture passes freely inwards for fully three-fourths of an inch. A few days ago, when the discharge was checked by some curdy material plugging the aperture, the child became gradually somnolent, but by next day an increased escape of matter was followed by complete relief to the head symptoms.

12th November.—Yesterday the wound entirely closed, and within a few hours somnolence, followed by a regular attack of convulsions, manifested itself. This was relieved by breaking up the cicatrix with the point of a probe. Some pus escaped, and the symptoms subsided. The aperture is directed to be kept open by daily introducing the point of a probe into the aperture.

2d January 1870.—The discharge has steadily diminished since last report, only a few drops of matter being recognisable upon the dressings when changed once in twenty-four hours. There has been no return of the stupor or convulsions. The patient has slept and eaten well. Sent to the country.

3d March.—I have the following note from Dr Macnair:—"I am glad to inform you that the little girl Dempster, upon whom you operated, is progressing favourably. The quantity of matter from the wound gradually diminished, and for the last fortnight there has not been a single drop. The wound is quite closed, and no bad symptoms have shown themselves."

When this case came under my observation, it appeared to me probable that the blow with the stone had produced a punctured fracture of the bone at the point struck, and that an intracranial, but extra-membranous, abscess had formed, in consequence of a fragment of bone detached from its surrounding vital connexions acting as a foreign body. The operation showed that this was not the case. The collection of matter was intra-membranous, for, on exposing the dura mater, the sinus was found to penetrate more deeply. Further, no fragment of dead bone could be detected, either with the probe, when the collection of matter was evacuated, or afterwards during the healing process. The condition of matters as exposed in the operation could be explained only on the supposition that the dura mater was injured coincidently with the skull; that suppuration occurred throughout the whole extent of the wound; and that, in consequence of the small size of the aperture in the skull and dura mater, the pus pent up within collected in quantity, pushing aside the brain substance so as to afford space for its accumulation. At the same time an adhesive meningitis must be presumed to have limited the purulent collection to the immediate neighbourhood of the seat of injury.

The wonder certainly is, that so little cerebral disturbance occurred in connexion with the injury at any period. The collection of the matter constituting the abscess must have taken place gradually, so as to afford time for the brain to accommodate itself to its altered relations to the cranial cavity. What disturbance of the cerebral functions did occur only manifested itself when the purulent escape was completely prevented, and rapidly increasing pressure on the brain was established. The effect of the pressure was manifestly first upon the hemisphere, occasioning somnolence, and only afterwards, as the pressure increased, coma and convulsions. There was never any special unilateral affection of the body, nor was there any imperfection in speech observed. The case was, so far as treatment is concerned, simply an illustration of the need of affording a free escape for matter from the sac of an abscess. The special situation of the abscess required the employment of the trephine to effect this. It cannot, therefore, be held to tell one way or another for or against the early use of trephining in cases of fracture of the skull of the punctured kind. Had trephining been employed in this case immediately after the accident, I have great reason to doubt if the case would have made as satisfactory a progress as occurred. Certainly no fragments of bone would have been found lying upon the dura mater, the removal of which might have seemed to justify such interference. In my own personal experience of punctured and gunshot fractures of the cranium, the result of early interference has been such as to make me doubt its advantage, and be very chary in employing it; while in cases of punctured fracture, where no early interference had been adopted, and the case left to follow its own course till the existence of an intracranial collection of matter and the pressure of a foreign body were afterwards recognised, the results have been very satisfactory. No doubt, the cases interfered with at once were of a much worse kind than those in which operative interference was delayed. The very severity, therefore, of the former may, in great degree, be held to be the real determining cause of the result, independent altogether of operation.

Three cases, however, which came under my personal care, impressed the safety of non-interference very strongly upon my mind. The first was a soldier admitted to the sanatorium above Balaclava under my care, in the month of May 1855. He had been wounded some weeks previously in the trenches before Sebastopol, and had sustained what was believed to be a scalp wound, for which he had been admitted to his regimental hospital. A few days after coming under my charge he had an attack of rigors, attended with headache, flushing of the face, a slow pulse, delirium, and somnolency. On laying open the wound to examine the skull at one point where the bone was bare, a small tuft of hair like a hair-pencil stuck right up from the surface, being held and wedged in that position by a minute fissure of the bone, which was so close that, but for the tuft of hair, it could not be recognised. The application of the trephine evacuated an intracranial and extra-membranous abscess; and lying on the dura mater was a thin flake of lead like a flattened shot-pellet, which had obviously been shaved off the passing ball, by which the fracture and temporary depression of the bone had been produced, and by which the tuft of hair had been introduced into the line of separation.

The second case was one of a soldier admitted about the same time to the sanatorium above Balaclava, who, some weeks previously, had sustained a gunshot fracture of the skull. There was an aperture in the vault of the cranium to the left of the vertex too small to admit of the introduction of the finger, but from which pus mingled with blood-clot and broken-down brain substance escaped abundantly. The patient was in years a mere lad, but during the few weeks succeeding the injury he had become old-looking, almost imbecile, and greatly emaciated. On examining the track of the wound carefully with the probe, it came in contact with a foreign body lodged in the left hemisphere. The removal of a circle of bone with the trephine evacuated a considerable abscess, and disclosed a ball lying in the cavity, which was readily removed by means of dressing forceps. Within a week the patient had made such a rapid improvement as to be scarcely recognisable, physically or mentally, as the same individual.

The third case was one of a student, who, coming home one night, got into a street fight, and was knocked down by the blow of a slater's hammer. He was not rendered insensible, but was able to secure his hat and walk home. On getting to his lodgings he found his head bleeding profusely from a small aperture over the vertex, and his hat penetrated by a round aperture. The bleeding was stopped by means of a pad and bandage, and he continued to attend his classes for the ensuing three weeks. During that time he suffered from severe headache and sleepless nights; but as the wound inflamed and suppurated, these uneasy sensations were attributed to pericranial inflammation. At the end of the three weeks he called on me, and on examining the wound I found it penetrated the skull, and the probe then came in contact with a piece of loose and bare bone. On laying open the scalp at the affected part I was able to effect the removal of the piece of bone, without requiring to resort to the use of the trephine; and having done so, I found a free escape was afforded to some matter pent up within the skull.

With such experiences, and with the well-known results of interference and non-interference as observed in the Schleswig-Holstein campaign, in the Prusso-Austrian campaign, and in the American civil war, I acknowledge I am much inclined to recommend non-interference in all cases of cranial injury, even of the punctured kind, except indeed in those cases where some very plain and obvious indication for interference presses itself upon the attention of the surgeon.

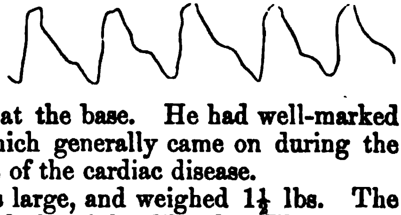
The operation in the case of this child Dempster and its results require little to be said.

The method of employing a piece of pasteboard penetrated by the trephine as a means of steadying the crown of the instrument till it "bites" the cranial surface, is a variation from the use of the centre-pin, to which I do not find any allusion made in systematic treatises on surgery. There are not many cases in which it is applicable. In any instance, however, where it is deemed desirable to dispense with the employment of the centre-pin, this expedient will be found readily applicable and efficient. The immediate consequences of the operation were sickness, feverishness, and headache, equally reasonably referable to the chloroform or to the diminished cerebral pressure. The convulsive attacks which occurred later were of too short duration and too slight in character to occasion any serious anxiety, and were probably connected with the constipated condition of the bowels. The reproduction of the symptoms of cerebral pressure when the opening closed, did certainly excite some apprehension that sound healing of the interior of the cavity was not to be attained without reopening the external aperture by a formal operation. The daily introduction of the probe seemed, however, to suffice for this end, and the satisfactory issue of the case sufficiently attests to this being all that was required.

ARTICLE VI.—*On the Nitrite of Amyl in Angina Pectoris.* By JOHN HADDON, M.A., M.D., Eccles, Manchester.

SINCE the nitrite of amyl was first used in the treatment of angina pectoris, a few cases have been published in which it gave relief, and in which its action was followed by no benefit. I have not as yet, however, observed a notice of any cases in which its action was hurtful, or gave rise to any serious symptoms. In what follows, I shall give a few notes of three cases in which this drug was used.

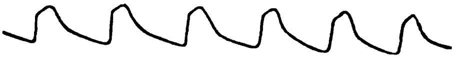
CASE I.—A. M., æt. 40. His pulse was ninety-four, and jerking. The accompanying tracing shows its character. The cardiac dulness was two inches vertically. A double blowing murmur was heard, loudest at the base. He had well-marked paroxysmal angina pectoris, which generally came on during the night. He died from the effects of the cardiac disease.



Post-mortem.—The heart was large, and weighed 1½ lbs. The left side was hypertrophied, and the right dilated. There were some milk spots on the surface of the organ. The endocardium, particularly in the left ventricle, was thickened at many points. The aortic valve was thickened and incompetent. The valves of the right side were natural. The first two inches of the aorta were sclerosed and atheromatous, with a few calcareous plates. The coronary vessels were natural. The aorta was not dilated.

This patient, for upwards of two years, was in the habit of taking a few sniffs of nitrite of amyl from a bottle, which invariably had the effect of almost instantly dispelling the paroxysm. So invaluable did he consider this drug that he was never without his bottle.

CASE II.—R. F., æt. 43. The pulse was seventy-six, and jerking. The tracing shows its character. The cardiac apex beat an inch below and a little to the outside of the left nipple. The cardiac dulness was three inches transversely. On palpation, the heart's action felt normal. On auscultation, a double blowing murmur was heard, widely diffused over the chest anteriorly and between the scapulæ behind on the left side. Its maximum intensity was over the centre of the sternum.



Nervous System.—He has almost constant pain over the cardiac region, which occasionally is very severe, and then extends through to the back and down the left arm as far as the elbow.

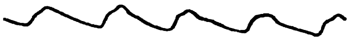
Respiratory System.—He has a slight dry cough. On auscultation the lung sounds are normal. He has dyspnœa when the pain over the cardiac region is severe. Other systems normal.

On the morning of 31st March 1868, he had a severe attack of angina pectoris. At 10 A.M. the pain continued. The pulse was of its usual character, jerking, and eighty per minute. Three drops of the nitrite of amyl were put upon a towel and given by inhalation. The finger was kept on his pulse; the cloth was held about two inches from the face, and removed every few seconds to inquire how he felt.

As he began the inhalation, the pulse lost its jerking character and gradually became slower. His face did not become flushed. The pulse, in the course of a minute from the commencement of inhalation, beat so slowly that I thought the heart would stop altogether; while the patient raised himself on his elbow, and with a pale face moved his head about as if for breath. At the same time he seemed confused, and did not answer questions. Brandy was speedily administered, and a current of air made to pass over his bed. Gradually the pulse began to beat more frequently, became fuller, and finally reached the jerking state just as it was before inhaling the amyl. He had a severe headache, and felt drowsy for half an hour afterwards, when he fell asleep, and on waking was as usual. The anginal pain was not relieved.

CASE III.—A. M., æt. 38.—*Respiratory System.*—He was troubled with a paroxysmal cough, which consisted of a series of expirations, and generally ended in the expectoration of some frothy mucus. On auscultation the respiratory sounds were normal.

Circulatory System.—Pulse ninety-two, small, and weak. The following is a tracing. There was visible pulsation in the arteries at the root of the neck. The apex beat in its normal position. The cardiac dulness was two and a half inches transversely. On palpation, the heart's action could be felt more distinctly than usual. On auscultation, a long blowing murmur of a musical character was heard all over the cardiac region. It was loudest over the third rib, about an inch to the inside of the left nipple. It was very distinctly heard from the third to between the first and second ribs of the left side. Over the right side it was much less distinctly heard.

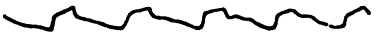


Nervous System.—He complained of pain over the cardiac region, extending through to the back and down the left arm as far as the elbow. After the paroxysms of coughing he was troubled with giddiness and palpitation. The digestive, genito-urinary, and integumentary systems were normal.

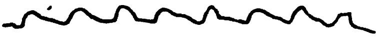
On 23d January 1868, at 10 P.M., the pain over the cardiac region and down the left arm being severe, it was thought that the nitrite of amyl might relieve him. The sphygmograph having been applied to the right radial, tracing No. 1 was taken.

Five drops of the amyl were then put upon a towel and given by inhalation. One minute after inhalation began, his face became flushed, the towel was removed, and a tracing taken under precisely the same conditions as the first (tracing No. 2). So soon as the flushing began he had some difficulty in breathing, as he stared considerably, and with open mouth turned his head from one side to another in an anxious manner. Immediately upon these symptoms, a paroxysm of coughing supervened, more than usually severe. The expirations of which the cough consisted became gradually shorter, until he was left sitting motionless, his mouth open, his face and neck greatly congested, and his jugular veins standing out as thick as one's little finger. He remained in this state a few seconds, when cold water having been dashed upon his face and neck, he took a deep inspiration, and fell back on his pillow exhausted. The angina was relieved. The paroxysms of coughing returned at intervals and varied in severity until midnight, when he fell asleep. He awoke at 6 A.M., and found the anginal pain just as it was before the inhalation. He died on 11th March 1868, never rallying after a paroxysm of coughing.

1.



2.



Post-mortem.—The left phrenic nerve was partially implicated in a small tumour of the size of a filbert, situated in part of the root of the left lung, and composed of a bronchial gland enlarged and infiltrated with carbonaceous matter. On microscopic examination the nerve-tubes were found continuous at the affected part of the nerve; the substance was slightly granular. The right phrenic nerve was natural. The vagi and recurrent nerves on both sides were natural. The pericardium was adherent throughout, very loosely behind, but firmly on the upper part of the anterior surface, over an aneurismal swelling, to be presently described. The heart was of natural size. The ventricles were somewhat hypertrophied, and the right auricle slightly dilated. The tricuspid orifice was widened. The valves on both sides were thickened at the margins, but appeared competent. Half an inch above the attachment of the aortic valve there was a round opening on the wall of the aorta leading to the aneurism. The opening measured about half an inch in diameter. The aneurism was of the size of a small orange, and contained numerous layers of clot, the older ones partially decolorized. It projected forwards somewhat to the right side, and encroached on the muscular substance of the outer and anterior wall of the right ventricle. It obstructed the entrance of the finger into the orifice of the pulmonary artery, and one segment of the valve of the pulmonary artery was adherent to the rounded surface of the tumour. The pulmonary artery beyond this point was natural. The aorta was atheromatous throughout the arch, and for some distance down. No important vein was compressed. The abdominal viscera presented no important lesion.

One might indulge in a considerable amount of speculation regarding the action of the nitrite of amyl in each of these cases. Believing, however, that it would lead to no good result, I content myself with having narrated a few facts in connexion with the use of this drug, and trust that they may be of some value to any who may contemplate using the nitrite of amyl in angina pectoris.

ARTICLE VII.—*On the Action of the Cobra Poison.* By J. FAYRER, M.D., F.R.S.E., C.S.I.; Surgeon, Bengal Army; Professor of Surgery in the Medical College of Bengal.

(*Continued from page* 1108, vol. xv.)

TRIAL FOR SNAKE-POISONING.

POONAI FATMAH and Joomun Fatmah are brought to trial for having, " on or about the 11th day of October 1868, at Hurdah, Zillah Purneah, committed culpable homicide, not amounting to murder, by causing the deaths of Titroo, Menghon, and Jikree."

1. Etwarree Mussahar, son of Dhunpat, aged 20 years, Moosahar of Bacha, Pergunnah Soorujgurrah, Zillah Monghyr, labourer.—I cannot recollect day or month. I came to Chitrapore, Zillah Pur-

neah, being engaged to make bricks for the Darjeeling and Caragola road, and was learning how to charm snakes from the two prisoners, Poonai and Joomun. At length, on a Sunday, the prisoners wanted to make the snake bite me. I did not wish the snake to bite me on any part of the body. They then pulled my ears in a tyrannical manner, and said, Why are you afraid? If the snake does bite, we will charm you, and recover you. Then they brought three snakes, two keraits and one keautiah; the latter a young snake, but all were poisonous. The two smaller snakes they put aside, and one large kerait, two *haths* long, they placed in front of us, and made Titroo place his right hand on the ground, and made the snake crawl on to his hand; but at first the snake did not bite him; then Poonai struck the snake with a cane, and the snake immediately bit Titroo on his right forefinger. After this, in the same manner the snake was made to bite Menghon on the right hand, and then in the same manner the right hand of Jikree. After this, in the same manner the snake was made to bite me on the right wrist: the snake then appeared to be dead. After this, the prisoners, having made incantations over the snake, brought it to life again, and, having placed some vermilion on its head, let it go free in a paddy field. After the snake had bitten Titroo he was attacked with great thirst, and began to foam at the mouth: he became senseless. At one *pahur* of the night remaining, Titroo was bitten, and he died half an hour before daybreak. Menghon and Jikree appeared well after Titroo's death; the poison did not seem to have affected them. The prisoners then ran away; Menghon and Jikree returned to their houses, and I heard they died there at mid-day. I was then senseless after I was bitten, my body and head began to turn round, and great perspiration commenced, with severe pain in the stomach, and my eyesight became dim, then I became senseless. I was brought from Bahadurpore to the Hospital, and remained there five or six days, when I became sensible again. All this took place at Bahadurpore in the court-yard of Moosum: he is not related to the prisoners, neither did he assist them. Some five or six other men besides we four were made to sit down by the prisoners, in order that the snake might be made to bite them; but owing to the snake becoming weak, they were not bitten. Seeing all the above, they ran away.

2. Bechoo Sirdar, son of Dookhun, aged 22 years, Moosahar of Manikpore, Pergunnah Secundra, Zillah Monghyr, labourer.—The prisoners, Poonia and Joomun, were in Assin teaching Titroo, Menghon, Jikree, Etwarree, Laloo, etc., some ten men, snake incantations, and I was also being taught by them. At length, on a Sunday night, the prisoners produced from an earthen pot two keraits and a keautiah, snakes, and began to teach us the incantations, and began to make the snakes move about in front of us all. We became afraid, whereupon the prisoners said, Why do you fear? if the snakes bite you, we are *gooroos*, and will soon restore you. After

this they made us place our right hands on the ground, and began to make the big kerait snake move towards our heads; we immediately from fear raised our hands. Upon this the prisoners struck us with rattans, and when the snake moved to a distance we again placed our hands on the ground. Then the prisoners took the snakes near to Titroo, Menghon, Jikree, and Etwarree, and made the snake, by striking it with a rattan, bite Titroo on the forefinger of the right hand: the throat of Titroo immediately became dry, and he became senseless. Then the snake was made to bite Menghon on the forefinger of the right hand, but Menghon did not suffer or become senseless. After this the snake was made to bite Jikree on the right hand; he did not either become senseless, but remained talking. Then the snake was made to bite Etwarree on the right wrist; he did not appear to suffer. Then Titroo died two hours before dawn, and the prisoners then ran away. We went in search of them, and at 10 A.M. we found them and seized them in a rice-field at Gurnabaree, west of the road, and took them to Bahadurpore. We told them to restore Titroo to life again, but they could not do it, but went and sat down at a distance. Then the police came, and we made the prisoners over to them.

I heard Menghon and Jikree died on the day following. Etwarree was placed on a cart and brought to Hospital. When Titroo became senseless the prisoners tried to recover the snake, which became torpid after biting Etwarree. The prisoners took the snakes with them when they went off. I did not see them let go by the prisoners. We were to pay one or two rupees for being taught: we were told that if we were bitten by a snake, in repeating the incantations and fanning the snake we should recover.

Two other witnesses are examined, but they give similar evidence to the preceding.

The information and deposition of Dr David Picachy, civil surgeon of Purneah, taken before me, J. R. Muspratt, Sessions Judge of Purneah, at Purneah, on this 12th day of January 1869, who being put on his oath, saith as follows:—

Ques. Did you examine the bodies of Titroo, Menghon, and Jikree? *Ans.* Yes, I did, and found that they had died from the effects of snake-poison. There was nothing abnormal about their internal organs which could be said to be the result of disease.

Ques. In what way did the three bodies exhibit the effects of snake-poison? *Ans.* Externally there were marks of snake-bites on their hands and arms, and internally the blood was in a fluid state, and the brain vessels deeply congested; the former state—viz., the fluid state of the blood—being particularly indicative of snake-poison.

Ques. Did you examine the wound of Etwarree? *Ans.* Yes, and found a scratch on the forearm; he was partially senseless when received into Hospital, but could reply to questions I put to him. His wound or scratch looked like that which would be inflicted by a snake. I treated him with ammonia for three days, when he recovered.

Ques. How do you account for the escape of Etwarree, the other three having died? *Ans.* He was the last person bitten, and must have received less poison than the others.

Ques. Was he, in your opinion, suffering from the bite of a poisonous snake? *Ans.* Yes, he was lethargic and depressed; there was very slight swelling about the scratch. The wounds on the three dead bodies presented a livid appearance, and the corpses were swollen and in a semi-decomposed state, resulting from rapid chemical change after death by animal poison.

Ques. (*by prisoners*). None.

These men were sentenced to five years' imprisonment by the Sessions Judge of Purneah, which sentence was confirmed on appeal by the High Court of Calcutta.

The snakes, as described by the witnesses, are two keriats (*bungarus cœruleus*) and one keautiah (*cobra di capella*), the variety with one occellus on the hood. The larger snake, said to be a bungarus, bit four men; three died, one appears to have narrowly escaped.

TWENTIETH SERIES.

Present—Drs Fayrer and Cutcliffe, and Mr Sceva.—
21st August 1869.

EXPERIMENT No. 1.—A large pariah dog was bitten at 3.24 P.M. in the thigh by a cobra that had been in confinement for some weeks, and had bitten before. Strong carbolic acid was immediately rubbed in, the punctures having been scarified. 3.30.—The hakeem who administered the "antidote" last Saturday again presented himself with another, and he was allowed to administer as much of it, a fluid resembling the former one, as he pleased. 3.37.—The dog staggers as he walks; another dose of the antidote administered by the hakeem. 3.40.—The dog is slightly convulsed, pupils dilated, and limbs partially paralyzed. 3.42.—Unable to stand when raised; is convulsed. 3.45.—Quite paralyzed. 3.48.—Dead, in twenty-four minutes.

A gentleman, who had believed, from some experiments performed under his own supervision, in the efficacy of carbolic acid, witnessed this experiment, and was satisfied that the acid is powerless to counteract the deadly effects of the poison. The hakeem also expressed his conviction that the cobra bite is inevitably mortal. Neither of these agents, indeed, had the slightest effect, and the dog died very rapidly, considering its size and strength, and that the snake was not fresh.

EXPERIMENT No. 2.—A small dog was bitten at 3.48 P.M. in the thigh by another cobra, also not fresh like the first. A solution of the powdered leaves of aristolochia indica, for which I am indebted to Mr —— of Mirzapore, was then administered, the fang-wounds having been previously thoroughly well rubbed with strong carbolic acid. 3.52.—The dog is staggering. 3.57.—The dog is staggering. 4.2.—Convulsed in hind-legs; paralysis in limbs commencing. 4.10.—Convulsive twitchings of the muscles generally. 4.12.—Unconscious, and convulsed. 4.15.—Dead, in nineteen minutes.

The antidotes were as powerless on this occasion as on others. The aristolochia has long been held in estimation as an antidote; it must, I fear, share the fate of all the others.

Experiment No. 3.—A small white dog had the inguinal fold of integument raised with two pairs of forceps to stretch it. This was then bitten (at 3.56) by a cobra not fresh, and that had been in confinement for some time. The fangs must almost have perforated the entire thickness of the fold of integument. With a sharp scalpel the fold of skin was at once entirely excised, the bitten part being certainly included in that removed. 4.18.—Looks sluggish, but no positive indication of the action of the poison as yet manifested. 4.27.—Muscular tremors. 4.31.—Deep breathing; lies, looking very sluggish. 4.40.—Very sluggish; muscular twitchings. 4.45.—Can hardly rise; staggers and lies down again. 4.49.—In convulsions. 4.55.—Dead, in one hour.

This was a very interesting and very instructive experiment, most clearly demonstrating the deadly nature of the virus and the awful rapidity with which it passes into the circulation. The bitten part was not merely excised, as we speak of excising the parts around the spot which the fangs had penetrated, but the fold of skin into which the fangs had injected the poison was removed within a second after the bite, for the knife had entered almost before the fangs had left. In fact, it could not have been done more rapidly, and yet within one hour the animal was dead from the effects of the poison. The infinitesimal portion of time during which the cobra's fangs were inserted into the tissues was sufficient to have sent the poison through the circulation beyond the reach of incision; and yet how very small must that quantity have been. Nothing I have yet seen has so thoroughly demonstrated the deadly effects of the snake-poison.

Experiment No. 4.—Two drops of venom taken from an old cobra —that is, from one some weeks in confinement—were mixed with four parts of water, and injected hypodermically into a fowl's thigh at 4.2 p.m. 4.4.—Drooping; cannot rise when roused; comb and wattles becoming livid; losing their brilliant red colour. 4.7.—Lying on its side; convulsed. 4.10.—Dead, in eight minutes.

Diluting the poison with water has no effect in destroying its action. Death occurred in eight minutes, and would have probably occurred sooner had the poison been taken from a fresh snake.

EXPERIMENT No. 5.—A fowl was bitten in the carpus by a cobra at 4.12 P.M.; the fangs were deeply embedded. The part was immediately amputated at the carpal joint, and a ligature placed above to prevent hæmorrhage. This is the same fowl that had precisely the same experiment tried on it last Saturday and recovered. 4.55.—Fowl quite unaffected. At 7 P.M. of the 22d, the fowl was still alive and well. It had thus escaped a second time, and is probably the only living creature that ever went through the ordeal of a cobra's second bite. It is evident that the immediate amputation of the part saved the fowl's life.

EXPERIMENT No. 6.—A small cat was bitten in the tail by a cobra at 4.27 P.M. The part was amputated above the bite in twenty seconds: this time was purposely allowed to elapse before the operation. A ligature was applied to prevent serious hæmorrhage. 4.47.—The cat still seems unaffected, except that the breathing is hurried. 4.55.—Still vigorous, runs about, but breathes hurriedly. 5.30 P.M.—Seems slightly affected; breathing is hurried. 6 P.M.—No further change. *22d August*, 8 A.M.—Appears natural, but it is evident, from the muco-sanguineous nature of the excreta during the night, that the cat has been slightly under the influence of the poison. 1 P.M.—Looks well; appears free from pain; no symptom of the poison beyond slight weakness. 7 P.M.—The same.

This animal has also escaped; the experiment is not thoroughly satisfactory or conclusive, as the cobra was not fresh, and the tail is not a very vascular part. Still it is suggestive of the benefit to be hoped for from early excision, and seems to show that, although the operation may not altogether preclude the entry of the poison into the circulation, yet that it may limit it to a degree in which it is not fatal.

EXPERIMENT No. 7.—Two drops of carbolic acid put into a large cobra's mouth at 4.50 P.M. 4.52.—Twitching in convulsive movements. 4.53.—Faint. 4.54.—Dead. This acid is very poisonous to all snakes.

TWENTY-FIRST SERIES.

Present—Dr Fayrer and Mr Sceva.—28th August 1869.

EXPERIMENT No. 1.—I have just received from Mr H. B. Simson, C.S., from Monghyr, some leaves and stalks of a wild plant growing in that vicinity, named by the natives "norbish," and reputed to be efficacious in the treatment of the bites of snakes or stings of other venomous animals, such as the scorpion, centipede, and wasp. The plant was brought to Mr Simson's notice by Baboo Hurrish Chunder. I have been as yet unable to find out its botanical name. The juice of the fresh plant was extracted and mingled with that of the green ginger, according to instructions.

A medium-sized but strong and active dog was then bitten in the thigh, at 3.37 P.M., by a cobra (*teturiah keauteah*), that had been in confinement for some weeks. One ounce of the juice was administered at 3.39, and some of the juice, with the bruised leaves, rubbed into the fang-punctures. The leg was partially paralyzed almost immediately after the bite. 3.40.—Staggers in his hind-leg as he walks. A second dose of the juice administered. 3.50.—The dog is lethargic, and breathes rapidly. 4 P.M.—Looks sluggish and sick; walks feebly, dragging the hind-legs. 4.2 P.M.—Another dose of the juice administered. 4.10.—Is sick; rejected a quantity of frothy mucus tinged with the juice of the plant. 4.12.—Another dose given. 4.15.—Sick again. 4.18.—Constant retching. 4.21.—Staggering; very restless; keeps his nose on the ground. 4.27.—Again retching; rises and staggers as he walks. 4.30.—Fallen over on his side; convulsed. 4.32.—Violently convulsed. 4.35.—Slight convulsive movements in neck. Respiration has ceased. Heart still beats. 4.37.—Dead, in one hour.

This dog, though small, was full-grown and vigorous. The snake was not fresh; hence perhaps the reason that death did not occur for one hour, instead of thirty to forty minutes, as is usual.

EXPERIMENT No. 2.—A small pariah dog was bitten in three places in the thigh by a full-grown bungarus fasciatus, that was brought from Soorie, in Beerbhoom, about three weeks ago. The snake seemed vigorous, and was just completing the exfoliation of its epidermis. The snake bit at 3.48 P.M. At 5 P.M. there were no symptoms of poisoning; the dog perhaps looked a little depressed, but that might have been from fear. The bungarus would not strike, even when the dog trod on it; it did its best to get out of the way, as I have so frequently seen with other snakes. It was only when its jaws were closed by the snake-man on the dog's thigh that it bit. 6 P.M.—No change. 8 P.M.—Vomited. 9.15.—Lying down; on being raised on his feet appears weak; steps irregularly. *29th Aug.*, 7 A.M.—Vomited again. 9 P.M.—Lying on his side, in which position he has remained all day; refuses food. *30th*, 7 A.M.—Appears to have recovered partially. *Noon.*—No further change. 6 P.M.—Looks better. *31st*, 8 A.M.—Still improving; takes food and water. *1st September*, 8 A.M.—Appears to be again suffering from the poison. *2d.*—Worse; unable to stand or walk steadily. *3d.*—Unable to stand. *4th.*—Unable to stand; tries to eat, but takes very little. *5th.*—Very weak; has diarrhœa. *6th.*—The same. *7th*, 4.55 P.M.—Died.

This experiment remarkably illustrates the slow action of the poison of the bungarus, as compared with that of the cobra or viper.

EXPERIMENT No. 3.—The same bungarus (Experiment No. 2) was bitten severely in three places near the tail, so as to avoid injuring the viscera, by a cobra (*keauteah*) at 3.54 P.M. At 5 P.M. there was no change, the bungarus was unaffected. *29th*, 7 A.M.—Sluggish; appears to have received some injury about the head and neck.

Mr Sceva reports that the bungarus died on Sunday morning before noon. He expresses a doubt as to its death being the result of the poison.

EXPERIMENT No. 4.—A fowl was bitten in the posterior part of the thigh by a cobra (*kalla keauteah*) at 4.6 P.M. Immediately the snake's fangs were withdrawn the part was cut out; the mass of muscle, including the two fang-punctures, was completely excised; certainly, not two seconds of time intervened between the bite and the removal of the part bitten. A ligature was placed tightly drawn around the thigh above the part bitten, and was relaxed just before the part was excised. The object of the ligature was to prevent entry of the poison by the circulation during the short time that the fangs were actually embedded in the flesh. 4.12.—Fowl crouching; head beginning to droop. 4.13.—Head nodding; beak resting on the ground, but still easily roused, as though from sleep. 4.16.—Very drowsy; head fallen over on the ground. Cannot stand or walk, but can still be roused. 4.25.—Can still be roused, but is very much depressed. 4.35.—In convulsions. 4.40.—Convulsive movements; weaker. 4.56.—Slow respiration; occasional convulsive movements. 5.10.—Dead, in sixty-four minutes.

It is evident that, although excision in this case did not save life, it mitigated the effect of the poison, and prolonged life. Had the part not been excised, it is probable that death would have occurred in a few minutes, instead of an hour and four minutes. The inference is, that when the poison is injected into a muscular part, before excision can be practised, a certain amount has already entered the venous circulation, and some of it has, by diffusion, passed beyond the reach of the knife, and so more slowly enters the circulation, and kills. In cases where amputation of the whole part can be practised, the latter danger is obviated; and if done very rapidly, as in the case of the fowl, in which the carpus was amputated, it may save life. The blood coagulated firmly after death.

EXPERIMENT No. 5.—A large fowl was bitten in the thigh by the cobra (*kalla keauteah*) that bit in Experiment No. 4, at 4.55 P.M. In this case the part was not cut out. The fowl was left to its fate, the object of the experiment being to contrast the effects with those where the part had been excised, the bite being inflicted by the same snake. 5.1.—The fowl is crouching, but is easily roused; has hurried breathing. 5.4.—Drooping rapidly, beak resting on the ground; starts; raises itself, as out of sleep; falls back into a profound state of lethargy. 5.8.—Springs from the ground with convulsive movements. 5.12.—Violently convulsed, and lies on the ground. 5.15.—Dead, in eighteen minutes.

This fowl was a more powerful bird than the one previously bitten by the same snake, and yet it lived only eighteen minutes, whilst the first that had the earlier, and consequently more vigorous bite, lived sixty-four minutes. The prolongation of life is evidently due to the excision of the bitten part in the first fowl; and though it shows only mitigation, and not annihilation of the effects of the poison, it is so far encouraging, for it gives time during which other *juvantia* may be had recourse to. But it plainly proves, when contrasted with the experiments in which amputation was performed, that in excision, diffusion of the poison takes place throughout the tissues beyond the limits of the fang-punctures, and that from this diffusion fatal absorption may take place.

EXPERIMENT No. 6.—A fowl was bitten in the forearm, between the ulna and radius, by a cobra, at 4.30 P.M. The part was immediately amputated at the elbow-joint; a ligature was applied to prevent bleeding. 4.40.—The fowl seems unaffected. 5.6.—Seems quite well.

7th September.—The fowl is still alive and well; it also has been saved by the immediate amputation, as in the case of the cat and the other fowl. The cases in which excision was practised all proved ultimately fatal, though death was delayed. Why is this? The reason, I believe, is, that when excision only is practised, although it may extend beyond the limits of the cobra-bite, yet it does not remove so much of the poison as has already so rapidly been diffused throughout the tissues.

The inference from this seems to me very clear, that in case of a bite in the finger or toe in a human being, amputation, if performed without delay, would offer the best chance of life. It is a terrible alternative; but as it is, perhaps, the only chance of saving life, it should be done. All the snake-men that I have seen admit that they have all little or no belief in any medicines; but that they know of instances where men have been bitten by cobras, and have recovered, by binding ligatures in several places tightly round the limb above the punctures, and then by burning the bitten part thoroughly either with a hot iron, a live coal, or exploding gunpowder. I hope on a future occasion to consider the whole question of "what may be done in snake-bite," and to summarize the results of such observations as I have been able to make myself or to gather in a reliable form from others.

TWENTY-SECOND SERIES.

Present—Dr Fayrer and Mr Sceva.—4th September 1869.

EXPERIMENT No. 1.—A pariah dog was bitten by a cobra (*bansbuniah keauteah* of the snake-men), in the forearm at 3.42 P.M. Carbolic acid was immediately rubbed into the bites, and within two seconds a strong ligature was tied as tightly as it could be drawn round the limb above the wounds. 3.44.—The dog is restless; the bitten and ligatured limb is almost paralyzed from the tension of the ligature; below the ligature it is intensely congested, and dark blood is dropping freely from the fang-wounds. 3.52.—Ten drops of carbolic acid, diluted with an ounce of water, were administered internally. 4 P.M.—The dog is lying down, and is very sluggish; but when he is roused he walks about. 4.5.—Lying on his side; restless; half convulsive movements of the limbs; breathing accelerated. 4.10.—Is now in the sitting posture, with fore-legs stretched out in a rigid convulsive manner. 4.11.—Rises; staggers as he walks. 4.14.—Rises; falls over again. 4.19.—Hind-legs twitch convulsively. 4.24.—Convulsive twitchings; is sick. 4.26.—Cannot stand; is convulsed. 4.30.—Sick and convulsed. 4.32.—Heart still beats; no respiratory movements. 4.33.—Dead, in fifty-one minutes.

This experiment shows how futile the carbolic acid and the ligature are, even when thoroughly and rapidly applied. The ligature was tightened to the extremest strangulation of the limb, within two seconds of the cobra's bite. The carbolic acid was applied even sooner, and yet the symptoms of poison set in rapidly, and death occurred within the hour. The snake, it is to be observed too, was not a fresh one, and had been some time in captivity.

EXPERIMENT No. 2.—A pariah dog was bitten by a cobra (*keauteah*), in the inguinal fold, which was raised and stretched for the purpose. The fangs penetrated deeply, and the part was immediately excised by a clean sweep with a sharp scalpel, the part wounded being completely removed. The cobra was not fresh, but it was active and vigorous, and bit fiercely. 4.12.—The dog is restless. 4.27.—Breathing accelerated. 4.35.—No further change. 4.40.—Looks sluggish; eyes blinking; breathing rather rapid. 4.46.—No change. 6 P.M.—No change. 9 P.M.—No change. *5th September*, 8 A.M.—Looks well; takes food. *6th*.—Quite well; not affected by the poison.

This dog escaped. The excision in this case proved successful; it was done very rapidly, and extended considerably beyond the marks of the snake's fangs.

EXPERIMENT No. 3.—The poison of a cobra (*teturiah keauteah*) was removed, and two drops inserted between the eyelids of a healthy and vigorous young puppy, at 4.12 P.M. The dog was examined again at 4.37 P.M., and the eye was found to have been most seriously affected. There was intense chemosis of the conjunctiva; so much so, that the eye could not be seen, and the lids well puffed out like a ball. The chemosis was very pallid.

4.46.—Dog again examined, and found to be deeply under the influence of the poison. Convulsed in the limbs; unable to stand,

and salivated; starting and whining with a short, snapping, snarling sound; chemosis intense; eyelids swollen like a ball; the eye cannot be seen. 4.54.—Paralyzed and convulsed. 4.56.—Dead, in forty-four minutes.

The result of this experiment surprised me much, for it proves that absorption of the poison can take place through a membrane, and prove fatal. I am certain there was no wound or abrasion of the conjunctiva, and yet the influence of the poison was rapid and deadly. Previous experiments have not illustrated this effect of snake-poison; according to most observers, it has been thought that the poison could be applied with impunity to any surface, even of mucous membrane, provided there were no wound.

Experiment No. 4.—Having exposed the surface of the pectoral muscle of a fowl, and having raised a few of the superficial fibres, without causing the effusion of more than a few drops of blood, two or three drops of the poison, just taken from a cobra (*keauteah*), were rubbed into the exposed surface at 4.12 P.M.

4.23.—Apparently not affected. 4.26.—The bird is drooping; head declining; rises suddenly with a start, as if awakened suddenly from a sound sleep; head falls over again, and the point of the beak rests on the ground. 4.32.—Rises and staggers; falls over in convulsions. 4.37.—Violently convulsed. 4.45.—Violently convulsed. 4.48.—Dead, in thirty-six minutes.

This experiment also proves that absorption of the poison takes place through the walls of the vessels; for, although the muscular fibre was exposed, there was scarcely a bleeding point. It shows the danger of allowing the poison to come in contact with any raw or abraded surface.

Experiment No. 5.—A very large bungarus fasciatus, five feet long, was bitten by a fresh and vigorous cobra at 4.46 P.M. The bite was inflicted near the tail. 6 P.M.—Very sluggish. 7.20.—Dead.

Mr Sceva notes that he thinks that death may have been caused by injuries inflicted from compression during handling; the head being very small, compared with the cobra and viper, the snake-man grasps the neck more firmly for fear of slipping, and hence may have caused the injury. But the results of more than one experiment incline me to believe that the bungarus is, though in a much less degree than the innocuous snakes, susceptible, and that it succumbs to the cobra or viper poison. At the same time, I quite recognise the justice of the doubt which is thrown on the subject by Mr Sceva.

Part Second.

REVIEWS.

On the Stature and Bulk of Man in the British Isles. By JOHN BEDDOE, B.A., M.D., etc., President of the Anthropological Society of London. London: Asher and Co.

IT would have been difficult perhaps to have selected for this little volume a better title than that which Dr Beddoe has chosen, yet it expresses very inadequately the nature and variety of the information contained in the work. More than two-thirds of the space is indeed taken up with statistical tables of the height and weight of men in various districts of Britain, together with short remarks, which, besides giving additional information bearing on ethnology, enable the reader to judge of the value to be attached to the individual observations. But it is only in the prefatory chapter and concluding commentary that we see how much there is, beyond the mere summing up of the facts brought out by the figures, to attract the attention of the ethnologist, philanthropist, and physician.

In the following notice, we shall naturally confine ourselves chiefly to the more purely medical aspects of Dr Beddoe's investigations; but some remarks must, in the first instance, be made upon the statistics themselves, particularly as to the mode in which they were collected, their extent, and the degree of value which may safely be attached to them. A considerable number of the observations were made by Dr Beddoe himself at Bristol; but to obtain a sufficient supply from the country at large, he had to throw himself upon the generosity of a great many people, for the most part perfect strangers to himself, and generally of the medical profession. The mode which he adopted was to distribute blank schedules, with a request that they might be filled up with the heights, weights, and certain other particulars, if possible, of at least twenty men at each place of observation, the subjects being taken as they came, so as to obtain a fair average, and avoid anything like selection. We cannot help sharing in the astonishment of the author that his appeals were generally answered with so much kindness and zeal. The difficulties encountered by the observers were by no means slight, but they were often so amusing as to relieve the rather dry nature of the inquiry; and Dr Beddoe has even made use of them to illustrate national and district peculiarities. Generally speaking, the more ignorant and barbarous the district, the greater were the obstacles encountered. In Ireland, it was impossible to make any progress at all, the natives, when hard pressed, taking to their heels; in England, considerable success was obtained; and from

Scotland the author got a large proportion of his best and most elaborate contributions. The author remarks of the Scottish lower classes, that they are, as a rule, both intelligent and obliging, and that the men examined generally took interest in the matter, and in only two instances did he hear of any difficulty being raised by them. We wish that we could heartily agree with this favourable estimate of our countrymen; but we must own that we have often heard, both at home and abroad, a surly disposition urged against them as one of their most serious faults.

One of the first points which engaged Dr Beddoe's attention was to determine the time of life within which man ordinarily attains and preserves his full development. Guided by the observations of Quetelet, Danson, and Aitken, he fixed upon 23 as the lower limit of age. In choosing 50 as the upper limit, he had less authority, but all the observations were taken between these ages. The total number of men thus weighed and measured amounted to about 7000 from 125 localities in England, and 1450 from 40 districts of Scotland. In some of these localities the number of cases observed is too small to give a fair average; but many of the returns contain a much larger number than the minimum of 20, and may be held to give a good average of their respective districts. The general superiority in height and weight shown in the Scotch returns might suggest that the observers, carried away by the national partiality which is supposed to draw a Scot so easily from the path of strict accuracy, had made a certain selection of their cases. The truthfulness of their returns, however, was happily confirmed by two which were made with unusual care, included the entire available population of the districts, and yet yielded very high results—one of them, indeed, the highest of all. But whatever doubt there may be as to the sufficiency of the observations to give a fair average of the individual districts, there can be no question that, when grouped together by Dr Beddoe for larger purposes, we may place great reliance upon them. Our confidence is further increased by the long familiarity with statistical inquiries, which has enabled Dr Beddoe to observe unusual precautions in dealing with his figures, and in securing the accuracy of his returns. Anxious to get as extensive a basis of figures as possible, he supplemented his cases by a nearly equal number obtained from our lunatic asylums, prisons, and from the recruiting books of the army. It was satisfactory to find that these, although from their selected nature less available for general purposes, on the whole confirmed the results derived from the returns of the country at large.

With all this, however, the author is unable to determine with precision the average height and weight of the British people. As to the former, he can come no nearer than this,—that in England and Ireland it certainly lies between 5 feet 6 inches and 5 feet 7 inches, and is probably about 5 feet 6¾ inches, while in Scotland it is perhaps as high as 5 feet 7½ inches. The average naked weight of Irishmen he fixes with considerable confidence at 138 lbs., and of Englishmen, but with less certainty, at 145 lbs., while the deficiency of returns from the Scottish towns prevents him from arriving at any fair result for this part of the kingdom. So far as can be judged from the scanty means of comparison which we possess, Dr Beddoe shows that his figures indicate no such marked superiority in stature of the southern English over their Continental neighbours as is generally supposed to exist; the common but erroneous opinion being no doubt partly derived from comparison of British soldiers with those of France, Belgium, etc., where the minimum standard is lowered to include a much larger proportion of the population than with us. In France, only 77 per 1000 are rejected by the regulations as to stature. We apprehend that our own military authorities have little idea that, when the standard is at 5 feet 6 inches, they exclude from the army a large majority of our young men, at least in the south of England. Dr Beddoe shows, that even taking the 5 feet 5 inches as the regulation height, 210 per 1000 of adults in Northamptonshire would be excluded; 260 to 280 in Wilts; 353 in Bristol; and in Hertfordshire no less than 417. Of course, as the great majority of the recruits are not adults, a still larger proportion than is indicated by these figures would really be excluded. The impolicy of so narrowly circumscribing our choice of recruits is self-evident; and it seems to be a question whether the regulation height should not vary in different districts according to the average height of the inhabitants.

We can do little more than enumerate other subjects of interest to the medical man contained in the commentary, and must refer to the work itself for full information. Dr Beddoe finds that both lunatics and criminals are on an average shorter and lighter than sane and honest men; that black eyes and very dark hair are more common among lunatics than in the general population; that no predominance of colour exists among criminals; that Scottish criminals exceed the lunatics in height and weight, a relation which is reversed in England, probably because of the larger proportion of hereditary criminals there. The evidence as to the result of inbreeding is very contradictory in his tables, and, on the whole, supports only in a very feeble way the current opinion as to the advantages on size of cross-breeding. The idea that climate, *per se*, has any influence upon stature, is very little supported by his materials. Passing by other subjects of considerable interest, including some valuable remarks upon the influence of diet upon stature, we select for more special notice what the author himself regards as perhaps the most important results developed in his tables—the physical differences between countryfolk and townsfolk.

Dr Beddoe may fairly claim to have been the first to prove, what has been hitherto merely suspected, or too hastily taken for granted, that a very considerable physical degeneration has taken place in the population of the large towns of Great Britain. To some the result may seem small; but when we consider the apathy of local authorities in carrying out measures for the improvement of the health of the lower classes, the general hostility of employers of labour to philanthropic efforts in that direction, the failure of permissive legislation in overcoming the shortsighted selfishness which is so ready to leave things to go on from bad to worse—when we consider the indifference to sanitary improvements of so high a personage as a cabinet minister, who can see no great harm in "sanding our sugar,"—we cannot help feeling that it is no trifling result to place for the first time on so solid a foundation an argument of such weight in favour of sanitary reform.

The most extreme instance of town-bred degeneracy recorded in Dr Beddoe's tables is that of the Spitalfields weavers, eighteen of whom averaged barely 5 feet 1 inch in height and 100 lbs. in weight. Fortunately there is no other example of anything like so great a degradation as this, but in all the towns the evidence of its presence is only too strong. As the returns from towns in Scotland are comparatively incomplete, we prefer quoting instances from England, which, however, can be only imperfectly appreciated without having the tables to refer to:—

> "Next observe the Sheffield return; the genuine natives of that town will be seen to fall considerably short of their fellow-workmen born in the surrounding towns and villages, and these again very much below the general population of Yorkshire and the other adjacent counties. At Haworth the population of weavers is stunted in comparison with Yorkshiremen in general, but even among them the natives of towns fall below the natives of villages, so that the degradation of stature would appear to be gradual and progressive."

As the towns are being continually recruited by the influx of fresh healthy countryfolks, the degeneration is probably considerably less than it would be if the whole population were of pure town descent; yet, in certain trades, too much importance must not be attached to this, as they seem to be in a great measure hereditary. However this may be, it appears from the tables that the Sheffield workmen have fallen about 1½ inches below the average stature in their county. We cannot follow Dr Beddoe into the enumeration and discussion of the causes which determine the variations of stature in townsmen and artisans, but we would draw the attention of our readers to his remarks on the relative importance of these causes. By an ingenious arrangement of the military returns, this inquiry is greatly aided; and he shows, on the one hand, that the evil influence of town-birth upon stature is greatest in the class of persons employed in occupations unfavourable to health, and on the other, that the influence of unfavourable occupation is greater in the towns than in the country; that while each class of agencies has a moderate deteriorating influence when acting separately, its effect is very greatly increased when it co-operates with the other. A good example of the influence of birth was obtained in Bristol by himself: Thirty natives of the town yielded an average of 5 feet 4·9 inches, and 125 lbs., while the same number born in the county of Somerset averaged 5 feet 6·7 inches, and 134 lbs., all being employed in the same place and manner as rivet-shoemakers. The influence of occupation comes out best in the details from Sheffield and Bristol. The importance of inquiries of this kind is so well brought out, and the clearness of the author's style so well illustrated, in the last page of the commentary, that we quote it here at length. In concluding our own remarks, we would commend as an example worthy of imitation the skilful use of leisure moments, which has enabled Dr Beddoe to accomplish so arduous an undertaking amidst the cares and distractions of a professional life.

> "Pending further investigations, I am disposed to think that the facts are best explained by the theory of a hereditary and progressive physical degeneration in certain classes of the inhabitants of towns. But, be this as it may, there can hardly, I think, be any question of the great national importance of the whole subject, at a time when the British people is rapidly being transformed from an agricultural into a manufacturing, from a rural into a civic people; when, with an increasingly-felt necessity for keeping up our military power, we have an increasing difficulty in obtaining recruits; and when the truth that both the individual and the national body require physical as well as mental and moral cultivation and development, is becoming more and more distinctly acknowledged. Thews and sinews may not be so universally and pre-eminently valuable among civilized as among uncultivated peoples; but in all ages, since the English became a nation, their position among other nations has been in a great measure due to the frequency among them of individuals of great strength and physical energy; and when we as a nation fall below others in this respect, we shall suffer for it not merely in our military, but in our commercial, and even in our scientific position.
>
> "I do not wish it to be supposed that I place a high value on superiority of stature as an individual advantage, or that I ignore the disadvantages that often attend it. I allow, too, that in nations, as in individuals, the greatest amount of physical vigour and hardihood by no means always accompanies the greatest size and stature. But if we examine only a single race or reputed race at a time, we shall find, I believe, that wherever that race attains its maximum of physical development, it rises highest in energy and moral vigour. Thus the inhabitant of Oude, or the Punjab, is as superior in courage and energy to the puny Bengali as he is in bodily conformation. And, to come nearer home, I have shown that Scotland in general, Northumberland, Cumberland, parts of Yorkshire, etc., and Cornwall are the portions of Great Britain which produce the finest and largest men. I think it will be acknowledged that they also yield more than their share of ability and energy for the national benefit."

The Climate and Resources of Madeira, as regarding chiefly the Necessities of Consumption and the Welfare of Invalids. By MICHAEL C. GRABHAM, M.D., F.R.G.S., Member of the Royal College of Physicians of London, etc., etc. London: 1870.

THIS is a neatly got-up little book, dedicated to the King of Portugal, with some clever engravings of scenes in Madeira. The object of the writer, who is one of the doctors practising on the island amongst the European visitors and residents, is to plead the cause of the climate of Funchal, which once had so great a reputation. "In view," Dr Grabham says in his preface, "of many existing treatises, and of the excellent and comprehensive 'Guide Book' of Mr R. White, the descriptive and social portion has been treated briefly and discursively." A mere list of the books and memoirs already published on the climate and natural history of Madeira occupies five pages, and the materials of a complete description of this beautiful island are thus available.

The first three chapters treat of the history and present condition of Madeira, and are the best in the book. Unhappily they deal with matters not suited for a medical journal. Some of Dr Grabham's remarks upon points in natural history indicate a careful observation of nature; at the same time, we may warn him against the occasional stiffness and pompousness of his style. The pages on geology are, we think, the best written, as their subject-matter requires directness of language.

People may be disposed to ask about our chance of getting good Madeira wine. "The vine disease," Dr Grabham tells us, "made its first appearance in 1852, when, in the absence of any known remedy, the vineyards were totally destroyed. Ordinarily known as the *Oidium Tuckeri*, its nature is that of a minute powdery fungus, which attacks at once leaf and grape, to the destruction of both. The fungus spreads its mycelium as a white cottony web, obstructing growth and respiration, and reproducing itself on an enormous scale, both by spores and the detached terminal cells of branches. The disease shows itself first at the end of May or in the next month, attacking simultaneously and in all directions indifferently, its most rapid development being marked by what in England we should call overcast close weather."

"The grape is generally well advanced before it is affected, and the danger is over when the fruit becomes translucent in the process of ripening. The universal remedy, or rather preventive, is sulphur; a well-ordered vineyard is kept constantly dusted, both on leaf and fruit, with the flowers of sulphur, and the mischief is effectually restrained."

In the absence of this preventive the evil is still unabated; and the presence of sulphur in the wines of Funchal is still causing serious inconvenience, from its tendency to produce sulphurous acid and sulphuretted hydrogen.

This passage shows the existence of a critical faculty in the author which is rarely exerted in the other parts of the book. Dr Grabham appears as an advocate anxious to make the best of his case; and his glowing descriptions of the attractions of the island are given with all the force of language which he can command, while any admission or qualification is made in a feeble and reluctant manner. Any one interested about Madeira, who wishes to compare two different styles, ought to compare

Dr Grabham's book with the article of Captain Frederick Saker on the "Dangers of Madeira," in the Fortnightly Review,[1] certainly a wonderful production for a non-medical man.

Dr Grabham's chapters on the Public Health and Diseases of Madeira are replete with his usual optimism. Every claim ever put forward by European practitioners on the island is kept up and insisted upon, and the climate is held up as equally beneficial to the diseases incidental to warm as to those of cold countries. Cases of dysentery, liver disease, or malarious fever from the coast of Africa, "recover rapidly and completely." With the exception of occasional destructive epidemics of dysentery, which, nevertheless, "is usually mild and tractable amongst the lower classes, and seldom attacks visitors," leprosy, and a few trifling skin diseases, are the only maladies which the warm humid climate of Madeira produce upon the human constitution. "The troubles of infancy and childhood are for the most part admirably evaded; the teeth are cut without an untoward symptom, and the ordinary diseases of children are unfrequently met with."

"The diseases of paludal malarious poison, ague, and intermittent fever are unknown; nor has this important immunity been influenced in the slightest degree by the cultivation of the sugar-cane."

"Insolatio also—*i.e.*, sunstroke, or heat apoplexy—an affection sometimes regarded as allied to this class, is altogether absent."

The eruptive fevers, he tells us, are mild; all inflammatory diseases favourably modified. People are generally exempt from chronic and acute rheumatism and from gout. Asthma and emphysema derive benefit from the climate. In fact, Plutarch's description of the Blessed Islands may be held to "serve generally" for Madeira and the neighbouring group: one begins to suspect Madeira must be the Garden of Eden, for the curse of the fall, "In sorrow shalt thou bring forth children," is here "leniently interpreted."

We are at a loss, either from our own observations and reading, or from the opportunities we have had of conversing with medical men and patients who have lived at Funchal, to find anything to confirm this favourable picture, save possibly in the last of its details.

The most sober account of the diseases of Madeira is that of Dr Gourlay, written after a long experience, and before the influx of visitors was considered an object of importance, and when men with British diplomas were not confined to practise amongst foreign residents. "Madeira," he remarks, "is equally the seat of disease as other countries, and the forms of these are neither few in number nor mild in their nature." In Madeira, as in other places of the same latitude, there is an increased tendency, compared with northern latitudes, to liver diseases, dysentery, and diarrhœa, and sufferers returning with such complaints from the African coast, persuaded to land in Madeira instead of going on to England, only prolong their illness and increase their danger. Although intermittent fever is not common, the damp and rainy winter climate of Madeira is apt to cause relapses with those whose constitutions are already impregnated with malarial poison. We doubt the absence of sunstroke in an island where the power of the sun is so much superior to our own. According to Dr Mason, whose carefully-prepared tables of observation are so instructive and suggestive, the difference of solar heat from shade is 23 degrees greater at Madeira than at London; the maximum power of solar radiation at Funchal was noted to be as high as 120° in January and 170° in May. "Ague and intermittent fever" are, we always imagined, one and the same disease; but they have no connexion with sunstroke, as Dr Grabham appears to think possible. Rheumatism, by all accounts, is common, especially in the sub-acute and chronic form. Scarlet fever and hooping-cough are also frequent, and not milder than elsewhere; anasarca is not an uncommon sequela to the former disease. Measles are also common; according to Dr Gourlay the inflammatory symptoms are mild; but the disease is prone to take a typhoid tendency. The children of European residents are for the most part pale and sickly, and do not grow up well, unless sent home.

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[1] Fortnightly Review, 1865, vol i. p. 612.

We are told by Dr Grabham that a residence in Madeira is sure to save a person from impending phthisis; early cases almost always derive benefit; and prolonged cases have more to expect from Madeira than "from climates of inferior efficacy." The tendency indiscriminately to grasp at all kinds of cases which seems to beset the advocates of Madeira, comes beautifully out in the following remark:—"Those cases of phthisis have the best prospect of amendment, whose tendency to a fatal termination is by successive attacks of pneumonia or pleurisy." Considering the mildness of the climate, this claim might pass as reasonable; but apparently shocked at his own moderation, Dr Grabham adds, "and also by the gradual advance of exhausting debility,"—including by this final clause nearly all the remaining cases which his previous definition had missed out. Some vague references are made "to advantages which this climate has lately been found to yield in the management of certain forms of renal disease. I speak principally of incipient Bright's disease, albuminuria, and of an unhealthy state of action remaining after the desquamation of scarlatina." Here, again, it is difficult to find what cases or stages of Bright's disease are to be excluded; indeed, most of them come under the one wide-grasping, though vague, description of albuminuria. Bright's disease is not unfrequent in Madeira; and from theoretical grounds, the island appears to us to offer little hope of amendment to a visitor compared with those held out by some other climates.

To endorse claims so wide and so unsupported by tangible facts as those made by Dr Grabham, would involve, on our part, a very serious responsibility. To send a single patient troubled with a dangerous disease to so distant and secluded an island as Madeira is a grave step. Funchal is a place not very easy for an invalid to reach, especially in October, when the seas are frequently stormy; and still more difficult for him to leave. If an invalid finds it does not suit him, which is not so rare an occurrence, he must either return to England, or land in Lisbon, and make his way across Portugal and Spain to one of the Mediterranean sanitaria,—for many reasons a very trying railway journey. Teneriffe, on account of its quarantine and bad accommodation, is not available. It occasionally happens that patients in this unfortunate predicament prefer to take the steamer to the Cape of Good Hope; but then they must wait till the heat of Cape summer, which answers to the winter of our latitude, has somewhat abated, and it is needless to say that this is a very long and expensive voyage.

A physician who, under ordinary circumstances, puts in practice a doubtful remedial agent, can at least stop it if he finds it does not answer; but although sending a patient to a hot and humid climate like Funchal is really putting a new remedial agent into practice, for which the medical adviser is justly responsible, it is out of his power to change it if the measure do not suit; and he may expect the sanitarium doctor to be very slow to admit that the climate has anything to do with any declension of health on the part of the sufferer.

A patient, on the contrary, who seeks the southern coast of France, is still within thirty hours' rail of England, and can communicate with his friends daily through the post, or, if need be, the telegraph. If one place do not suit him, he has the whole range of the Mediterranean sanitaria to choose from; hence Madeira is exposed to a great disadvantage, unless it can be proved to be distinctly superior to all other places of winter resort lying within easy reach of one another. Dr Grabham would fain leave the impression (pp. 182, 185-194) that the desertion of Madeira was only a temporary one, that it is now beginning to become a place of winter resort again, and that the loss of a portion of its winter visitors was owing to causes that have now passed away; among which he enumerates, "an exclusive quarantine, some difficulties respecting the status of English physicians, and a general want of efficient communication happening at an opportune moment." The facts of the case are: During 1856-7 the average number of winter visitors from Great Britain was diminished to ninety-five by the terrors of the epidemic of cholera, which had recently visited the island; and again in 1866-7, when cholera appeared in Southern Europe, the Portuguese renewed their exclusive quarantine; and it was perhaps their precautions, though easily evaded, which caused the number of British visitors to sink to seventy-one. We cannot here enter upon details about the status of English physicians and opportune communication. Suffice it to say, that Madeira never wanted doctors, and that the means of communication have been steadily improving for the last twenty years, whereas the resort of the place has been steadily declining, and that this decline had begun before those so-called causes existed, and has been going on since they have been removed; for the decline has not stopped. Few invalids came in the season 1868-9, and fewer still in 1869-70.

We naturally expect to hear something about the Brompton Hospital experiment, as half of the patients, we believe, were under the care of Dr Grabham; the only allusion we reproduce in full:—"The last project of the kind was commenced a few years ago under the excellent auspices of a late British consul, and twenty poor men were brought out to Madeira. After the first season, however, the authorities of the Hospital for Consumption at Brompton, with whom the scheme was unfortunately associated, saw fit to secede from the undertaking. The sanatorium at Madeira, hardly established, was prematurely closed, a large fund of money already subscribed for another winter was scattered and lost; and, worse than all, an invaluable and rare opportunity for recording authoritatively the worth of climate in the treatment of disease, was wantonly and reprehensibly abandoned."

For the benefit of our readers who may be unacquainted with this experiment, we give the results from a work which Dr Grabham several times quotes—that of Dr C. T. Williams on the "Climate of the South of France":—"It may not be out of place to notice the experiment which was lately made, by the committee of the Hospital for Consumption at Bromptom, in sending twenty patients, selected for the purpose, to Madeira for the benefit of the climate in winter. The result was by no means so favourable as had been anticipated; not more than three out of the number returned in an improved condition. One died in the island; and the others generally lost flesh and strength; and the disease in them made considerable progress. It must be added, that these patients, although well fed and cared for, had little or no medicine administered to them; and they thus show that the climate alone, unaided by cod-liver oil, tonics, and other aids in treatment, is truly of inferior efficacy."

Now, most people will be disposed to agree that the physicians of Brompton Hospital were not justified, for the mere sake of carrying out an unlucky experiment, in expending the funds at their disposal in sending back cases to Madeira which had already been found not to derive the promised advantage. If those interested in the resort of phthisical patients to Madeira think that a second experiment will be more successful, we have not the smallest doubt that, if they provide the requisite funds, plenty of patients will be forthcoming, and their outlay will be reimbursed by the increased reputation and resort of the sanitarium. The assertion that a residence in Funchal will save a person from threatened phthisis is opposed to known facts.

When Dr Grabham assures us, in his chapter on the Meteorology of the Island, that the greatly increased irrigation, following upon the substitution of the sugar-cane for the vine at Funchal, has not increased in the most trifling degree the amount of moisture in the air, we may content ourselves with remarking that, as the ground is kept continually wet—wet both to the eye and the finger, and covered with a close and rank vegetation—we are unwilling to believe that the ordinary laws of evaporation do not hold good in Funchal. In reference to the statement of Dr Williams, in his book on the Climate of France, about the increase of fever since the introduction of the sugar-cane, it is the general opinion of the inhabitants of Funchal that a form of low fever prevalent in the spring is more common than usual, but that it is seldom in itself the cause of death. Dr Grabham insists upon stating the humidity of the air solely on the scale of relative percentage, which is not readily applicable for physiological purposes. Air at saturation at 32° and at 90° is stated by the same figure of relative humidity, 100; but then at 32° it only contains 2·37 grains of moisture to the square foot, and at 90° it contains 14·5 grains; air at saturation at 90° would still be 100, but the passage of watery vapour from the skin and lungs would be at a standstill; at 32° these processes would go on till the air in the lungs and in contact with the skin was brought up to saturation at the temperature of the body. There is more moisture in the air of Funchal than in any other place of winter resort.

There might be a time when the treatment of phthisis was so ill understood that an escape to any climate might be a relief, if it were attended with an escape from the doctors, and when the notion that a warm climate had a curative influence upon phthisis might induce those seeking its benefit to dispense with the antiphlogistic code which depressed their strength; but the treatment of consumption is now totally changed. Warm sedative and humid climates have no longer the efficacy formerly conceded to them; the mere dietetic treatment which has come into favour is not at all suited to a perpetual summer temperature, especially to one with so little reaction at night, and so depressing to the appetite, as that of Funchal. The influence of climate has been more carefully studied; and it is vain now to overwhelm us with the single authority of Sir James Clark.

It would be better if the remaining advocates of Madeira, instead of warring against the irresistible tendency of medical opinion, would faithfully study those diseases, or stages of disease, in which the climate is of real use. Funchal must now take its place among a number of other climates, in nearly the same zone of latitude, like Sicily, Malaga, Tangiers, Malta, Alabama, Florida, and the Bahamas. Dr Grabham assures us (p. 180) that he knows of no climate on this side of the equator which presents similar advantages; but this is not any more likely to be received than his assertion (p. 111), that the winters of Iceland "are in general less severe than the winters of Lombardy."

Madeira is, however, a climate which may do much good to properly-selected cases, and we might have taken some trouble to point out how the humid warm equally-tempered air is capable of giving great relief to certain inflammatory forms of disease of the air-passages, as well as to some other disorders, had not our space been already occupied in rebutting claims upon which hopes would assuredly have been founded, destined to bitter disappointment. Exorbitant demands only excite challenge and dispute, and retard the payment of a just debt.

Handbook of Physiology. By WILLIAM SENHOUSE KIRKES, M.D.
Seventh Edition. Edited by W. MORRANT BAKER, F.R.C.S.
London: James Walton: 1869.

DR KIRKES's work has always held a deservedly high place among English text-books. At the time when it appeared it represented fairly enough the position of physiological science; and though it could not be considered a complete treatise on physiology, it certainly included a philosophical statement of all that it was most essential for a student to know.

In the twelve years which have elapsed since the first edition appeared, the science of physiology has, however, made steps which may be justly characterized as surprising. Every year has seen an increasing number of inquirers eager to apply to its researches the light afforded by chemical and physical discoveries; and concerning many matters, which were but a short time since involved in utter obscurity, we have now very precise information. In order to be said to know physiology, at the present time, a man must not only be conversant with the statements of text-books, but he must have undergone a severe and lengthened training in the experimental methods of the science; he must, indeed, be exceedingly, and practically, intimate with many sciences. Without a knowledge gained in this way, it would appear utterly futile for any man to attempt the remodelling of such a work as the one before us; and we cannot but regret that the task has, in the present instance, been discharged in such a manner as to reflect little honour on British Physiology. Kirkes's Physiology cannot now be said to be merely antiquated, for in his attempts to incorporate new matter the editor appears to us to have rendered the book so inaccurate as to preclude a conscientious lecturer from recommending it to his students.

At the time when Dr Kirkes undertook the task of writing this book, scarcely any attempts were made in this country to teach physiology in a practical manner. The results of experimental inquiries were taught, but not the method of conducting these; and accordingly we are not astonished to find that Dr Kirkes's book was mainly a didactic statement of facts, supposed to be accurately ascertained, accompanied by only the most meagre account of experimental methods. Since then, however, our opinions with regard to the proper method of teaching have changed, and all, we should fancy, will be ready to agree that, just as no teaching of physiology can lay pretence to completeness which does not include an interesting and accurate *demonstration* of great physiological facts, so no book can be considered suitable for the student which does not describe, in an accurate manner, the general methods which have been followed in investigations. For this reason, if it were for no other, we should be inclined to condemn, in a decided manner, Mr Morrant Baker's edition of Dr Kirkes's handbook, although we are chiefly influenced by the numerous errors, of omission and commission, with which it is replete.

The first and second chapters in the book are devoted to a consideration of the general and distinctive characters of living beings, and to the relation of life to other forces. The third contains an account of the chemical composition of the human body, and as this only extends to eleven pages and a half, it is necessarily meagre. Although we are quite willing to admit that space would not permit an elaborate description of the exceedingly numerous proximate principles of the body, we still think that some kind of idea of the different albuminous bodies which are known, ought to have been included. The author does not, it is true, pass them over entirely; though he does not scruple to omit most interesting facts, he nevertheless is able to devote half a page to Mr Alfred H. Smee's experiments on the supposed conversion of albumen into fibrin, proving to us that he is far from consistent with his determination, "to regard the discussion of all new and crude matter as secondary in importance to a clear enunciation of those grander facts on which alone all true knowledge of the science must be founded."

The chapters on the Structure of the Elementary Tissues being a very brief epitome, mainly compiled from Quain's Anatomy, do not call for any special comment, and we pass to consider the way in which the author has, in Chapter VI., treated the Blood. We have no hesitation in saying, that we could not have conceived it possible that a more confused or inaccurate statement of a subject which has lately attracted so much attention, could have been written. At page 83, the author tells us, under the head, *Chemical Composition of Red Blood-cells*, that the cell-wall is composed of a protein compound of unknown composition, which contains the *cruor*, which is soluble in water, and is composed of two substances, intimately and perhaps chemically combined, which have been named *globulin* and *cruorin*. Having discussed the former, he tells us that cruorin "has probably not been separated in a pure and unaltered state;" that the experiments of Professor Stokes would indicate that the hæmatin of chemists is really a product of chemical decomposition, and not the pure and unaltered colouring-matter for which he proposes the name of cruorin. "As, however, hæmatin must of necessity be very closely allied to cruorin, even if it be not identical with it, it may be well to enumerate its principal characters." To the discussion of these, Mr Baker assigns a whole page of his book. In his section on *the Gases contained in the Blood*, we are told, very curtly, that considerable uncertainty prevails as to the state in which carbonic acid and oxygen exist. "It is most probable that they are partly free, and partly in a state of weak chemical combination;" and the author remarks, "The observations of Professor Stokes, before referred to, make it likely that the colouring-matter or cruorin is the constituent of the cells which thus holds the oxygen in weak chemical union with itself, to deliver it up as it is wanted in the course of the circulation." However startled the reader may have been by the paragraphs which we have quoted, his surprise will be much greater when he reads the article on *Blood Crystals* (pages 99 to 100), which terminates in the following manner:—"The substance of which they are composed has been especially studied by Lehmann; it appears to be of an albuminous nature, and probably results from a retrograde transformation of the contents of the red corpuscles—viz., the hæmato-globulin, or, as it may be now termed, cruoro-globulin. The globulin, however, seems to be essentially the substance of which most of these crystals are composed; for Lehmann has obtained them free from colour, but, in other respects, apparently unaltered. Cruorin, or a modification of it, is, however, also crystallizable. This interesting subject is still involved in some obscurity."

Is it possible that Mr Morrant Baker can be ignorant of the fact, that cruorin and hæmoglobin are two names for the same substance; that this substance is perfectly definite in composition, and can be obtained in a state of the greatest purity; that blood-crystals are nothing more than this substance; that hæmatin has no other relation to hæmoglobin than that of being one of the products of its decomposition; that an immense number of facts have been ascertained with regard to the combination of hæmoglobin with oxygen; and that, thanks to Hoppe-Seyler, Pflüger, Kühne, and a host of other observers, we know perhaps more of the mode in which oxygen is retained by the blood-cells than we do of any similar subject in the whole range of physiological chemistry?

In his discussion of the pulse, Mr Morrant Baker thus alludes to the subject of Dicrotism:—"Various theories have been framed to account for this dicrotism of the normal pulse; but the most probable, and that which is generally adopted, supposes it to be due to the aortic valves, the sudden closure of which stops the incipient regurgitation of blood into the ventricle, and causes a momentary rebound throughout the arterial system. As before remarked, when the tone of the artery is good, the dicrotism is less marked;

and it is often replaced by a series of very slight vibrations." This is, certainly, an easy way of disposing of a most interesting, and, in every particular, a most important matter. We, however, think that after perusing Dr Sanderson's monograph on the Sphygmograph, the editor will think it advisable to change his opinion, and to re-write the paragraph.

In the chapter on "Respiration," under the head *Exercise and Sleep*, we do not find even an allusion to Pettenkofer's beautiful experiments, which proved the storing up of oxygen in the body during sleep.

Under the head of "Digestion" we find about two pages devoted to the Pancreas. Having alluded to *some* of the facts known with regard to the action of this organ on starchy and fatty matters, the author concludes: "The pancreatic secretion has been supposed to discharge a third function—viz., that of dissolving albuminous compounds. It is very doubtful, however, whether its effect in this way is more than a slight one; and, at any rate, the function is quite subordinate to the other two that have been mentioned." With regard to this matter we should strongly advise Mr Baker to consult a very admirable abstract of Kühne's very well-known "Researches on the Pancreas," by Professor Michael Foster, which appeared in one of the early numbers of the "Journal of Anatomy."

Neither time nor space will permit us to point out at greater length the numerous and serious defects of this book. We would, however, strongly advise the editor to extend his reading to Kühne's "Handbook of Physiological Chemistry," and to Hermann's text-book on "Physiology."

A Manual of Zoology, for the Use of Students. Vol. I. By HENRY ALLEYNE NICHOLSON, M.D., D.Sc., etc., etc.

THIS work supplies a want which has been long felt by the student of Natural History, and we congratulate the Professor of Natural History in the Edinburgh University on having it in his power to recommend to his class a work which, to a large extent, embodies the substance of his own lectures. We cannot, moreover, refrain from expressing our opinion that the gratitude of the author, acknowledged in the preface to be due to Professor Huxley, is also due, at least to as great an extent, to Professor Allman.

In the introduction a good explanation is given of the various expressions most commonly used in the science; but we are of opinion, with reference to certain of these, that the author has sacrificed too much for the sake of brevity, and thus given rise to an amount of obscurity which cannot but be perplexing to those of his readers not previously acquainted with the subject. We would adduce as one example of this the author's enunciation of Von

Baer's law; and, again, his reference to the Darwinian hypothesis is much too short to enable the student to gather any precise information on this at present all-engrossing subject.

The body of the work is excellent, the classification and structure of the various divisions of the animal kingdom being fully explained in accordance with the latest views of the best authorities in each department, whilst at the end of the description of each zoological group a short account is given of its distribution in time and space. An excellent glossary of scientific terms completes the volume.

While pointing out what we believe to be some defects in this work, we congratulate Dr Nicholson on the result of his labours, and are fully persuaded, if the second volume of the Manual comes up to the standard of that now before us, the result will be a work which will soon take its place among the many excellent text-books now in the hands of our students.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XLIX.—MEETING IX.

Wednesday, 4th May 1870.—Dr BENNETT, *President*, in the Chair.

I. *Drs Orphoot* and *Roberts* exhibited the anæsthetic action of the NITROUS OXIDE GAS on several patients from whom teeth were extracted. The gas employed was that prepared and compressed into a liquid by Messrs Coxeter of London, with Clover's mouthpiece and apparatus. The results were highly satisfactory, and chiefly distinguished by the rapid recovery of the patients, about ninety seconds sufficing in each case for the whole operation of anæsthetizing, extraction, and recovery, and only the slightest lividity was remarked in but one case.

Dr Bennett returned the thanks of the Society to the operators, and remarked that the rapid action of the gas, the quick recovery from its effects, and the absence of lividity or any appearance of danger, were most striking and satisfactory, and were in strong contrast to what he himself had seen at Norwich about a year and a half ago, when the lividity, induced by the nitrous oxide gas as then administered, was very apparent. The absence of this symptom, and also of any excitement, seemed to be due to the great purity of the gas, and the peculiar method of administration which secured the exclusion of atmospheric air. He observed, that Dr Horace Wells had not only been the first to produce complete anæsthesia by means of this gas, and extract teeth under its influence, without pain, but had also first advanced a rational theory of anæsthesia. His idea was, that anything capable of producing great cerebral excitement, such as the delirium of battle or of intoxication, rendered the brain unconscious of local impressions, hence he sought to excite the brain by nitrous oxide gas.

Dr Matthews Duncan agreed that to Horace Wells was due the earliest practical production of anæsthesia in dentistry, for which Morton and Jackson had received undue credit. Wells, on finding his deserved claims unrecognised, had fallen into despondency, and shot himself.

II. *Dr Watson* showed an adult female patient on whom he had recently operated for CLEFT HARD AND SOFT PALATE, AND DOUBLE HARE-LIP. Dr Watson showed the appearances before operation by two portraits, representing the condition of the patient. Dr Watson mentioned that he had now operated upon thirty cases of cleft palate with perfect success in all except two. In one of these diphtheria supervened, and the patient died from the paralytic complication. In the other, union failed, but without sloughing of any portion of the flaps. The operation Dr Watson employed has uniformly been that of Langenbeck, without, however, any preliminary myotomy.

III. The BONES OF THE CARPUS, THE ENDS OF THE RADIUS AND ULNA, AND THE BASES OF THE METACARPAL BONES OF THE FINGERS AND THUMB, removed from a patient (adult male), who for two years had suffered from disease of the bones of the carpus. Several sinuses, the result of abscess, existed round the joints. The operation practised was one introduced by Dr Watson three years ago, and consisted of a simple linear incision to the radial side of the extensor tendon of the forefinger four inches in length. After clearing the whole posterior aspect of the parts to be removed by lateral displacement of the soft parts, the trapezium was divided with the bone-pliers, and the wrist-joint opened from behind. The ends of the radius and ulna were thus sufficiently cleared to admit of the application of a small saw, so as to cut away the mere cartilages of incrustation. The carpus was then tilted backwards, and the flexor sheath carefully dissected off the anterior surfaces of the bones, the pisiform bone being retained, and the unciform process cut through with the forceps. The base of the metacarpal bones was then divided with the saw. The trapezium and base of the metacarpal bone of the thumb were next cleared, and the articular surface of the latter shaved away with the saw. The progress of the case had been entirely satisfactory.

IV. The parts removed in a recent case of EXCISION OF THE KNEE-JOINT in a lad of fourteen years. The case was one of anchylosis of the knee-joint from old disease of the articulation. The position of the leg was one of right angles to the thigh. The head of the bone being displaced backwards, the hamstring muscles having become shortened, and extensive firm cicatrices surrounding the outer and posterior aspects of the joint, it appeared very problematical whether the necessary excision could be practised so as to effect straightening of the limb without necessitating so extensive a removal of bone as to render the limb useless, either from its being greatly shortened, or from the complete removal of its epiphyses preventing growth. The excision of bone was limited, but the soft parts required extensive division, so that nothing but the popliteal nerves and vessels, and the cutaneous tissues corresponding to this position, about half an inch in width, were left undivided. The case has progressed most satisfactorily.

V. The osseous parts removed in a case of EXCISION OF THE ELBOW-JOINT. The joint operated on was stiff, swollen, and painful. The swelling was elastic, almost fluctuating. This disease originated in an injury whereby the inner condyle had been fractured obliquely into the joint. The operation was performed by a linear incision.

VI. A SUBCUTANEOUS CYSTIC TUMOUR removed from the upper part of the thigh of an elderly male patient. The tumour was originally translucent, but since it had lain for a few days exposed to the air, it became turbid, and latterly, though still fluid, much like lard contained within a bladder.

VII. *Dr Joseph Bell* showed a CALCULUS, about the size of a horse-bean, which he had recently removed from the urethra of a boy æt. 13.

He had been asked to see the boy by Dr Stephenson on account of retention of urine, and found the bladder greatly distended. On passing a catheter, the calculus was felt filling up the membranous portion, and preventing the evacuation of the bladder. As the urethra was very small and the symptoms urgent, Dr Bell at once cut down in the middle line, and removed the calculus through a free incision. The urine passed *per urethram* after the first twenty-four hours, and the wound healed rapidly, and the boy was soon quite well.

VIII. Some PIECES OF THE SKULL which he had removed from a case of depressed fracture of the skull by the trephine and elevator. The patient, a powerful man, had been injured by an explosion of gunpowder in a pit, which had inflicted a severe and extensive depressed fracture of the frontal bone, with laceration of the dura mater, numerous scalp wounds, fracture of the right upper jaw, compound fracture of the right ulna, and laceration of the wrist, extensive burns of arms, and numerous small wounds from pieces of shale.

Among these one wound was found in the left subclavian region about an inch in length and very deep. This was found to extend, backwards and downwards, below the scapula and ribs for some inches, and at the bottom of it a small piece of shale was felt, which had to be removed by a pair of curved forceps. The patient had gone on for twelve days without presenting any unfavourable symptom.

IX. *Dr Robert Paterson* then read his paper on ACUTE LEUCOCYTHEMIA IN CONNEXION WITH PREGNANCY.

This paper is published at p. 1073 of this Journal for June 1870.

Dr Matthews Duncan remarked on the extreme interest of the cases related, and the apparent novelty of this form of disease, as complicating labour. He regretted much that no necropsy had been obtained, because both increase of the white blood-corpuscles and some degree of enlargement of the spleen were common enough in some forms of so-called puerperal fever, the occurrence of which in the cases related was by no means excluded by the entire latency of other and more distinctive symptoms.

Dr Bennett also remarked on the interest of the cases narrated. He, however, regarded the term acute as misapplied, because it was impossible to say how long the disease had been progressing before the occurrence of pregnancy, which may have masked the slowly progressing symptoms, the disease appearing fully developed after delivery. It was by no means necessary that the spleen should be enlarged in such cases, as disease of any part of the lymphatic system was sufficient to induce it Dr Behier of Paris had published a case, caused by hypertrophy of Peyer's glands only. The practical lesson to be noted in such cases was, that the great tendency to hæmorrhage which characterized this disease must increase the great consequent risk to such patients in childbirth. He also remarked, that in many cases want of attention alone was the cause of the idea that the splenic and other enlargements in this disease were of rapid growth.

Dr Grainger Stewart remarked that leucocythemia appeared in various forms, at one time accompanied by great splenic enlargement, and at another by enlargement of the lymphatic glands alone, either external or internal, while in a third form the splenic and glandular enlargements were combined. He did not consider Dr Paterson's cases at all allied with any form of blood-poisoning as hitherto described, but thought they threw a new light upon this subject.

Dr Watson stated that all operations on such patients were extremely hazardous, from the tendency to irrepressible oozing, which some years ago had proved fatal in a case in which he had been induced to operate, notwithstanding the employment of every appropriate hæmostatic measure.

SESSION XLIX.—MEETING X.

Wednesday, 18*th May* 1870.—Dr BENNETT, *President*, in the Chair.

I. *Mr Annandale* showed PORTIONS OF BONE removed in a case of excision of the hip-joint, and remarked that he had performed excision of this joint in three instances during the last six months. All the cases were progressing favourably.

II. A FOOT affected with disease of the tarsus, which he had removed by amputation at the ankle-joint from a child eighteen months old.

III. *The President* then made the following remarks:—

GENTLEMEN,—Since we last met, two members of our Society have been removed from us by death—both of great eminence in the respective branches of the medical art which they practised. I refer to Sir James Simpson and to Mr Robert Nasmyth. These events are too recent to permit of my entering at present into any account of their professional career; but when the usual time arrives in which such changes in our Society are referred to from this Chair, I shall not fail to do so. It would appear, however, that our American brethren have recently complained of the manner in which the great discovery of rendering surgical operations painless has been publicly alluded to by the former Lord Provost of this city, and that the last contribution to medical literature of Sir James Simpson was an answer to these complaints, in a pamphlet, just published, entitled "History of Modern Anæsthetics." There can be no doubt that much exaggeration, and a large amount of popular fallacy, exists on this subject. A colleague of mine has recently quoted the following passage which originally appeared in the *Times*:—"Twenty-five years ago the operating theatre of an hospital was, to the public, a thing of indescribable dread; while, in private practice, the approach of the surgeon with his instruments of torture struck terror into countless households. This dread is gone—this terror is past. To one man we owe this great change and unspeakable good." Now, Sir James Simpson, when lying on his deathbed, in the pamphlet referred to, himself denies the correctness of this popular belief, and has clearly stated what he conceived to have been the part he took in modifying and extending the great American discovery.

Gentlemen, the labours of Sir James Simpson in this field of inquiry were originally communicated to our Society, and they must be fresh in the memory of many gentlemen now present. It so happens that I myself was at that time the Secretary of the Society, and recorded in its minutes the communications and discussions which took place on this matter. Further, I was also the then editor of the Medical Journal of this city, and therein published monthly an account of the progress of etherization, and of the introduction of chloroform as a substitute for ether. Lastly, on the evening when the new narcotic agent was first introduced to this Society (10th November 1847), a committee was appointed to investigate its properties, of which I was named convener. Of the researches of that committee, I subsequently drew up a lengthened report, which was read to the Society on the 15th of December 1847, and published in our Medical Journal the following January. I trust, therefore, you will consider that I am in some degree entitled to speak on the points at issue—the true account of which, as it appears to me, is as follows:—

1st, That numerous efforts in past times had been made and suggested for rendering persons insensible during pain, however produced. Physiologists had successfully used them when experimenting on the lower animals, and in medicine they were extensively employed. But all such efforts had been abandoned during surgical operations in man previous to 1844, as being either not practical or not safe.

2d, In that year (1844), Dr Horace Wells, a dentist of Hartford, Connecticut, U.S., employed nitrous oxide gas for extracting teeth without pain, having, as he tells us in a pamphlet he subsequently published, been led to do so by observing that persons under the influence of that gas, or when greatly excited, as in battle, or from intoxication, were insensible to injuries inflicted upon them. It had, however, been recommended for this very purpose by Sir Humphry Davy fifty years previously.

3d, Dr Wells communicated his ideas to the medical men of Boston, U.S., including Drs Morton and Jackson, the former also a dentist, and a previous pupil and partner of his own. He endeavoured to show the good effects of nitrous oxide gas in the theatre of the Massachusetts General Hospital, but having withdrawn the bag containing it too soon, the experiment failed—a circumstance which discouraged for two years public efforts in this direction.

4th, The vapour of sulphuric ether was first employed by Dr Morton, in Boston, U.S., on the 30th of September 1846, in the successful extraction of a tooth without pain; and shortly afterwards it was also successfully used in surgical operations, and became generally employed in America and Europe during the following November and December. It would appear, however, that this was done, if not altogether by the suggestion, at least with the advice and encouragement, of Dr Jackson, who subsequently disputed with Morton the honour of the discovery.

5th, On the 19th of January 1847, ether was first employed in a difficult case of midwifery by Sir James Simpson, in the presence of Dr Ziegler, Dr Keith, and Mr Figg. An important obstetrical operation was performed, and it was ascertained that this, the progress of the labour, and its successful conclusion, were accomplished without pain, the consciousness of the patient having been suspended for a considerable time.

6th, We are informed by Professor Miller, that on the 4th of November 1847, chloroform was first tried by Sir James Simpson on himself, and on his assistants Drs Keith and Duncan; and in the first paper Sir James published on the subject, he tells us that the drug was recommended to him for that purpose by Mr Waldie of the Apothecaries' Company in Liverpool. On the 10th of that month it was publicly made known at the evening meeting of this Society. Many of the members inhaled it, and its agreeable odour, rapid and powerful effects as an anæsthetic, and general superiority to sulphuric ether, were at once admitted by those who tried it. The enthusiasm it created, and the remarkable aspect of a very crowded meeting, half of whom were temporarily excited and intoxicated by the drug, will not be readily forgotten by those who were present.

7th, Up to this time the expressions etherization and narcotism had been correctly applied to the process and result of producing insensibility by means of these drugs, but Sir James Simpson now introduced the terms anæsthesia and anæsthetics, with a view of not alarming the public. It should be understood, however, that the effect is produced by suspending consciousness, and therefore sensation and volition, by acting on the brain and medulla oblongata in exactly the same manner as is done by opium, alcohol, and other narcotics.

8th, This is the more important to be attended to, as occasional deaths were soon reported as being caused by chloroform. These, it is true, are few, when compared with the many cases in which the drug was employed in dentistry, surgery, and midwifery, but have been in the aggregate sufficiently numerous to induce great caution, and a constant sense of anxiety among the profession at large. No fatal results, it is alleged, have been caused by the use of nitrous oxide gas or sulphuric ether.

9th, Other means of producing a true anæsthesia have been since sought after. Dr James Arnot of London introduced powdered ice and frigorific mixtures, which, by freezing the part, admitted of operations being performed without pain. More recently, Dr B. Richardson of London effected the same object, by pumping the spray of a pure ether on the part. It is to be observed, however, that the intense feeling of cold thus occasioned is disagreeable, often extremely painful, and that these methods, therefore, have never supplanted chloroform in dentistry and surgery.

10th, During the last two years, nitrous oxide gas has again been introduced with great success in dentistry; its preparation and mode of administration having been much improved, principally through the efforts of Mr Clover of London. But it has not superseded chloroform in surgery, as it has not yet been considered safe to prolong sufficiently the effects it produces.

Lastly, Other narcotic agents have been employed, especially by Dr Richardson of London, to remove pain, such as the bichloride of methylene, the tetrachloride of carbon, the chloride and nitrate of amyle, with varying results. Only last year, the hydrate of chloral was introduced as an hypnotic and anæsthetic, by Dr Liebreich of Berlin, and it is now being generally tried and investigated by the medical profession. None of these agents up to this time have superseded chloroform.

From this record, it appears to me, that as regards the three great anæsthetics which have been largely used, the first, nitrous oxide gas, was suggested by Sir Humphry Davy, and introduced into dental practice by Dr Horace Wells; the second, ether, was recommended by Dr Jackson, and first introduced into dentistry and surgery by Dr Morton, and into midwifery by Sir James Simpson; and the third, chloroform, was suggested by Mr Waldie, and applied to medical practice generally by Sir James Simpson.

Gentlemen, it unfortunately happens that the newspapers in this country have been altogether one-sided in their criticisms on this matter, and it is very probable that the journals of America are equally so in their views of what relates to this subject. Under these circumstances, and at this juncture, I trust that the simple enumeration of the facts I have now given, scrupulously avoiding all opinion and estimate of the respective merits of individuals, may not be without utility. There can be doubt that the impartial world of science will ultimately give its verdict regarding claims which at present are only too keenly disputed.

IV. *Dr George W. Balfour* showed a preparation of AN AORTIC ANEURISM taken from the body of a woman about 40 years of age, admitted in a dying conditionin to Ward XIII. of the Royal Infirmary. Two years previously, she had been under treatment in another ward, and the aneurism had been then detected. On the evening of admission, while visiting in a friend's house, she suddenly vomited, as was stated, two basinfuls of blood. She was sent to the Infirmary, and, on admission, was found almost cold and pulseless; the hæmorrhage had in a great measure ceased. Next day, there was considerable hæmorrhagic reaction, with slight bloody expectoration, and great feeling of sickness and tendency to vomit; no cough. There was a pulsating tumour to the left of the sternum, just beneath the clavicle, the size and relations of which were, for obvious reasons, not more minutely examined. The diagnosis was rupture of an aortic aneurism into the œsophagus; the prognosis, of course, most unfavourable. Bits of ice were given to suck, milk and lime-water in small quantities given continuously for food, and the iodide of potassium in moderate doses thrice a day, with strict orders not to give way to the feeling of sickness, and on no account to get up from the recumbent (supine) posture. For a day or two, the case progressed favourably, the pulse steadied, and fell in rapidity, and the patient began to feel comfortable. Towards the end of the week, however, the pulse again commenced to rise, the sickness to increase, and the strength to fail, and she died just about a week after admission. On dissection, the posterior part of the arch and the upper portion of the descending aorta were found saccularly dilated and pressing backwards upon the vertebræ; the sac was found partially filled with a tolerably firm fibrinous clot, and opening by a minute and scarcely pervious abrasion into the trachea, and into the œsophagus by a much larger ulceration, the size of a farthing, with thick everted edges, and almost wholly closed by a somewhat porous but not recent clot. The stomach was found filled with a large coagulum accurately moulding its interior.

V. A SMALL ANEURISM, rather larger than a large walnut, filled with a firm, pale, fibrinous clot, attached to the upper part of the ascending aorta, just where it passes into the transverse, removed from the body of a man who died from the fatty form of Bright's disease (large white kidney), and who had not at any time presented symptoms of aneurism. Dr Balfour said that this was the first instance of the spontaneous cure of aneurism which had fallen under his own immediate observation; but many such cases had been recorded by Hodgson and others, and formed a great encouragement to physicians in attempting the cure of such ailments, because nature could, of course, only cure under certain conditions and in certain circumstances, while art could fulfil the one and alter the other.

VI. *Dr Miller* then read Dr Watson's paper, ON A CASE OF INTRACRANIAL ABSCESS SUCCESSFULLY TREATED BY TREPHINING, which is published at page 40 of the present number of the Journal. In reply to a remark by the *President*, *Mr Annandale* said that the skull had been trephined six or eight times in one patient; and *Dr George W. Balfour* stated that on one occasion more than the half of the skull had been successfully removed by trephining, or rather trepanning, the patient surviving to attest his surgeon's success.[1]

VII. *Dr Gilruth* then read his case of successful REMOVAL OF CAULIFLOWER EXCRESENCES FROM THE PENIS, and *Mr Annandale* made a few remarks on it.

VIII. *Dr Bennett* then stated that he would now redeem his promise, and report the result attained in a case of LOCOMOTOR ATAXY in his Clinical Ward, which had been treated by nitrate of silver, according to Dr George W. Balfour's recommendation. The patient was a middle-aged man, with perfect command over his limbs so long as he lay in bed, and with no loss of sensibility, but he was utterly helpless when erect, from his total inability to perform the combined movements necessary to progression. He was otherwise a well-nourished, healthy man. He was put upon half a grain of the nitrate of silver three times a day, and galvanized by the interrupted current. He left the ward about a week ago, certainly very much improved, able to walk about slowly with one stick, and to go up and down stairs. The results were very encouraging, and Dr Bennett would certainly have recourse to a similar treatment upon a future fitting occasion, but it was still doubtful how far rest and nutrition alone availed in such cases, and how much was due to the drug. In an extended hospital experience he had known many similar cases discharged temporarily improved after various forms of treatment, and this made him slow to acknowledge great faith in this particular one. The result of Dr Lockhart Clarke's post-mortem examinations made it still more difficult to believe that a cure could be attained under any treatment whatever.

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[1] The patient was Philip, Count of Nassau, the surgeon one Henricus Chadborn; the operation was performed twenty-seven times, and the date of the certificate of recovery is the 12th of August 1664.

Dr George W. Balfour said that the case he had himself formerly referred to was precisely such a crucial one as Dr Bennett required. He had been under treatment in another ward for several months, with all the advantages to be derived from rest and nutrition, yet, for want of appropriate drug treatment, he had gone from bad to worse till he could at last no longer even stand. Several months' appropriate treatment were requisite before improvement was attained, but the patient could now walk a distance of three miles and back without a stick at all. This case was, moreover, only one of a series, all of which had improved under this treatment. The term *cure* was, however, not applicable to such cases,—a certain number of the symptoms were removed or lessened in degree, and the disease, as a whole, was more or less permanently arrested; but even that he considered to be a most important matter in a disease hitherto stigmatized as progressive. In one case, however, a perfect cure had been obtained, every symptom having disappeared.

IX. *Dr George W. Balfour* stated that recent German writers had vaunted the use of Peruvian balsam in the treatment of itch, one rubbing being quite sufficient, and no hospital treatment required, the balsam soaking into the galleries and eggs and destroying everything on the body within an hour, at the same time soothing the eruptive irritation. He himself had tried the liquid styrax in one case with great success. The balsam of Peru was, however, said to be more easily applicable and quite as active as the styrax; when it was employed, no baking of the clothes was necessary, a second rubbing ten days afterwards being all that was requisite to destroy the stray eggs or animalcules which might have been lodging about the clothes.

Dr Bennett remarked that stavesacre had formerly been employed with great success, but it had acted as a powerful irritant, and caused considerable inflammation.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXIX.—MEETING VIII.

Wednesday, 9*th March* 1870.—Dr BELL, *President*, in the Chair.

I. *Dr Keiller* showed an EPITHELIAL CANCEROUS GROWTH, which he had removed from the posterior lip of the cervix uteri of a patient who had been sent to him by Dr Young of Kirkcaldy. It is a good specimen of what is called the cauliflower excrescence; and the woman for some time back had lost a large quantity of blood. The operation was performed two days ago by means of the écraseur, and under the influence of chloroform. The chain was passed behind the cervix, and the structures were slowly divided, the division being completed by scissors. There was very little bleeding, but the perchloride of iron and glycerine was applied. He was in hopes that the cervix had been divided sufficiently high up to prevent the return of the disease.

II. ADDITIONAL CASES TREATED AT THE ROYAL MATERNITY HOSPITAL. BY DR CHARLES BELL.

The following cases seem to me to be sufficiently interesting to entitle them to be brought before the Society, and I hope they may be the means of inducing such discussion as will extend the general knowledge of the different subjects which they tend to illustrate.

Two Cases of Spina Bifida.

Mrs Ashly, Grassmarket, aged 31, was delivered on the 29th January 1869 of her eighth child. She stated that she was last unwell in the month of June, and quickened on the 1st September; she had had no miscarriages; that all her children had been born at the full time, and were well formed. Her husband goes about the country with Punch and Judy, and she has accompanied him for many years, carrying a heavy box on her back for hours daily, which has induced her to stoop very much.

Her labour was tedious, having commenced at 2 A.M. on the 28th, and it was not completed until 4 A.M. the following day. The fœtus presented in the first position, and the caput succedaneum was situated on the upper part of the right parietal bone. There was nothing particular in her labour except its tediousness.

The child had a combination of malformations. The penis was contracted at the middle of its length, and the glans was much swollen. The flexor muscles of the lower extremities were contracted so that the legs lay in a bent position; and the two patellæ were situated on the outside of the knees. The natural position of the limbs, therefore, when not extended, was very much like Punch's on the stage, the feet being in the state of talipes varus.

The hips were flattened, and there was a large spina bifida situated on the lower part of the lumbar region and upper part of the sacrum, measuring 2½ inches in length and 1½ in breadth.

It took very little nourishment, and died in convulsions on the fourth day after birth.

Agnes Porteous was delivered of her first child on the 2d January 1870. Her labour presented nothing unusual; but the child had several malformations. There was a spina bifida, about the size of a hen's egg, on the lumbar region. The tumour was flaccid and transparent at birth; but on the following day it became distended with fluid, and on the third day opaque flakes made their appearance, and there was a sort of plastic lymph secreted, and the tumour threatened to suppurate. On the fifth day it burst, and its fluid flowed gradually off. A slough formed, which was removed. On the sixth day there was considerable discharge of fluid. The child became restless, and refused to take the breast. It all along kept up a low moaning sound, which was occasionally interrupted with sharp cries. Thrush made its appearance, accompanied with dark-green evacuations from the bowels, and reddish discharge from the vulva. The umbilical cord separated, leaving a foul sore.

Diluted carbolic acid was applied to the back, and chloral in doses of from three to five grains was given to procure rest. On the seventh day, convulsious came on, and chloral was again administered with apparent benefit, as it produced quiet; but the child gradually sank and died. In addition to spina bifida, there was talipes calcaneus of the left foot, and talipes varus of the right foot.

Dissection of the Tumour.—There was found a deficiency of the transverse and spinous processes of the third and fourth lumbar vertebræ. The sac was formed of the membranes covering the spinal cord; but in consequence of the state of the parts, the connexion of the cord itself with the tumour could not be distinctly made out.

Remarks.—This kind of malformation has been described under different names by authors; such as hydra-rachis, hernia spinalis, and meningole of the spinal cord—a designation given to it by Foster. It is characterized by a deficiency of one or more of the laminæ and spinous processes of the vertebræ, and it may occur at any part of the vertebral column; but it is met most frequently on the lower lumbar vertebra, and the first of the sacrum, and the last vertebra of the neck. It varies in size from that of a pea to that of an orange generally; but sometimes it extends from the neck to the sacrum. It is transparent, having no covering from the skin; and it varies in colour, being sometimes red, at others it is livid like a cancerous tumour. It is soft in the centre, but where it joins the true skin it sometimes has a bony hardness like the caput succedaneum. It is usually filled with what is considered the cerebro-spinal fluid. Cruveilhier states that, "if the tumour corresponds to the upper lumbar vertebra only, the spinal cord very seldom deviates from its course, and the posterior spinal nerves are generally the only branches which have connexion with the sac;" but if it occupies partly the lumbar, and partly the sacral region, the cord itself, and its nerves, will be found intimately connected with the sac; hence the paralysis which sometimes accompanies the disease.

According to Dr Coley, this disease commences at the second month of gestation, when the process of ossification is liable to be arrested in certain parts; but at whatever period it begins, it seems to have no effect in general on the growth of the fœtus in utero, as it is in some instances healthy, often large and very strong; in other cases, however, the ankles are weak, distorted, and paralytic. For the most part it proves fatal in infancy, or rather a short time after birth; but there are some instances of cure, one of which is related by M. Gosselin, who states that Dr Sezerie injected the tumour in a child of nine months of age with perfect success. The child had paraplegia, and both arms were paralyzed. The tumour was as large as an egg, and was situated on the lower part of the lumbar region. It burst twice spontaneously. Dr Sezerie used a trocar and canula, and, after letting off the fluid, he injected equal parts of tincture of iodine and water, which was retained some minutes. After this operation the tumour did not return; the paralysis of the arms disappeared, and the paraplegia gradually diminished, and the child ran about when two years of age; the only remains of paralysis was incontinence of urine.[1]

Dr Tanner[2] states that the injurious effects of the disease vary according to the locality of the tumour and its contents. When situated on the neck it generally proves fatal in a few days after birth; but it is less dangerous when it is situated on the lumbar and sacral regions. He refers to cases in which the patients lived to the age of twenty or thirty years, and some even attained the natural period of life. Chaussier, who had extensive opportunity of observing the disease in the Maternité in Paris, states that it occurs once in every thousand births.

Treatment.—As a general rule, it is considered that the less this disease is interfered with the better, as any kind of operation is attended with great danger. But if the tumour is increasing in size, it is justifiable to try something, and the most obvious resource is to puncture it and then inject iodine, afterwards to apply gentle pressure. In adopting this treatment, Hewitt considers that great caution must be used, lest in puncturing the tumour the spinal cord or nerves should be injured.[3] The puncture should therefore be made at the side and lowest part of the sac. The child should have nourishing diet if weaned, and a strong healthy nurse if still nursing, along with pure country air.

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[1] British and Foreign Review, No. xxix., p. 208.
[2] Diseases of Infancy and Childhood, p. 125.
[3] Tanner, *op. cit.*, p. 126.

Case of Excess of Extremities.

Mrs M'Guire, Grassmarket, was delivered of her thirteenth child, a girl, on the 4th February 1869, after an easy labour, which was so rapid that the child was born some time before the medical attendant arrived; but when he came he found the placenta still retained. On examining the cord he found that there was a firm knot about the middle of its length, which he untied. She was not at her full time, having altered on the 10th May, and the child gave unquestionable signs of being premature, as its upper extremities were only three and a half inches in length, the arm being one and a half inch, and the forearm two inches—a circumstance which indicates that the child was little beyond the seventh month or commencement of the eighth month; which Casper[1] considers "the most important period in embryonic life in a medico-legal point of view, because at the end of the thirtieth week, or 210th day, the fœtus indubitably, and, according to statutory declaration, commences to be viable." The child had six fingers on each hand, all of which had nails. There was talipes varus of both feet, and the anus was occluded. There were several marks on the head as if the result of blows.

The patient stated that five of her children were born in the eighth month, and died soon after birth. One of these had twelve fingers and twelve toes—a peculiarity which seemed to be hereditary, as both father and grandfather had had the same. She accounted for the appearances on the child's head by her having been knocked down and kicked on the abdomen by a drunk man on the 1st January.

The child took some food and its bowels were moved, but the evacuation passed through the vagina. It died the following day at 9 A.M.

Remarks.—Excess in the extremities, especially in regard to the number of the fingers and toes, is not an uncommon deformity; and it is not unusual to find it hereditary, as it was in this case. The supernumerary extremities are generally smaller than the natural fingers and toes. They are always situated either on the inner or outer border of the hands and feet, and as they have no muscles, they are useless appendages. It is therefore desirable to remove them soon; but in doing so it is necessary to guard against injuring the joints of the natural extremities, as sometimes they are implicated with the supplementary organs. It is also to be remembered that erysipelas is extremely apt to occur after the removal of these supplementary fingers and toes. This took place in a patient of mine which was operated upon by Mr Syme. The erysipelas soon yielded, however, to the use of the muriated tincture of iron, and the child made a good recovery. This child had six fingers on each hand, and the little toe of her right foot was webbed—a peculiarity which several of the family had. The father of this family had six toes on each foot, and all his brothers, except one, had either supernumerary fingers or toes. There is a general impression in certain places, that the excess of extremities is a sign of good luck—a circumstance which was fully exemplified in the family here referred to, as every member of it was most successful in a worldly point of view.

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[1] Forensic Medicine, vol. iii. p. 16.

Dr Keiller said that he had been called to the country yesterday to see a case of spina bifida. The child was three weeks old, and the tumour, which was uncovered by skin, was situated in the lumbar region. It felt soft, but did not fluctuate. Carbolic acid plaster had been applied. His opinion was sought as to whether any operative interference should be resorted to, but he did not think that any operation would be of benefit. He remembered once seeing a spina bifida in a girl of twelve, who was able to go about; and cases had been reported in which the patients had lived thirty or forty years. The higher the tumour was situated, the more fatal it proved.

Dr Menzies said that he believed that Dr Henderson of Leith had had a case of spina bifida which was successfully treated by operation. The mother of the children whose cases he (Dr M.) had reported to the Society was again pregnant, and for some time he had been giving her the chloride of calcium, in the hope that in this way the tendency to spina bifida might be averted. Dr Menzies, replying to Dr Craig, said that there was no family history to account for the peculiarity, and the four children born previously were quite healthy.

Dr Milne said that, in his experience, the occurrence of supernumerary fingers and toes was the most frequent kind of malformation.

Dr Keiller said he remembered seeing a family in Fife where seven or eight of the children had some of the toes absent, and their places supplied by little rounded berry-like appendages.

III. CASE OF RETARDED LABOUR. BY DR M'COWAN.

On the morning of the 5th January, between the hours of 3 and 4 o'clock, I was called to see M. M., who was reported to be in labour. It was her first confinement. I found upon inquiry that labour had commenced on the previous evening at about 8 o'clock, the pains recurring only at intervals of fifteen minutes. I did not consider it necessary to remain. I returned, however, about 8 o'clock, and found the patient in much the same condition. On paying several successive visits up till Thursday evening, I found the pains occurring every five minutes, and proceeded to make an examination per vaginam, and found that the membranes had ruptured, and on inquiry learned that they had done so at the commencement of labour. The os was only dilated to the size of a shilling, although labour had been going on for twenty-four hours. I also found an elongated coccyx, which was quite flexible, and which, during a pain, formed a complete curve, due to the contraction of the coccygeal muscles. I continued to dilate the os, and, during a pain, to push back the coccyx, so as to facilitate labour; but I found that after five or six pains, labour entirely ceased for more than an hour, and again commenced and advanced the child somewhat, and again the pains ceased. The head being now pretty well down, and the os fully dilated, I administered to the patient ʒij. tinct. ergotæ, which acted upon the uterus in twenty-five minutes; but, owing to the prominency of the coccyx and the action of the muscles, the child's head was prevented from passing through the outlet. Inertia of the uterus again occurred for a considerable time, and I allowed the patient to rest herself.

On the evening of Friday the 7th, I again administered ʒij. tinct. ergotæ, and employed friction externally; labour recommenced in fifteen minutes. I, during a pain, pushed back the coccyx, when the child's head passed through the outlet. Another pain occurred, and the child was born at 8.30 P.M., but apparently dead. I adopted the method recommended by Dr Marshall Hall to restore animation, and after half an hour the child breathed and cried lustily. The umbilical cord was of considerable length, being three times round the child's neck; placenta large and healthy. The patient made a good recovery.

Two weeks after delivery, I examined the woman to ascertain as accurately as possible the form and dimensions of the coccyx. In form it was rounder at the edges and more triangular than the ordinary coccyx, and having a distinct neck, with a nodule at its apex, of an oval shape. The length from base to apex was 2½ inches, from base to neck, 2¼ inches; at the base the transverse measurement was ¾ of an inch, at the neck, ¼; the long diameter of the nodule, which is placed transversely, amounts nearly to ½ an inch. The coccygeal muscles were very strongly developed.

Dr Cochrane was of opinion that forceps should have been used.

IV. PREGNANCY WITHOUT MENSTRUATION.

Dr James Young read to the Society some statistics which he had collected, showing how frequently pregnancy had occurred where the women had never menstruated more than once or twice during ten or twelve years, and where six or eight children had been born. Among other cases, the following two might be specially mentioned:—

CASE I.—Mrs M. was married on 10th September 1859; menstruated in October thereafter, but not again to this date (June 1870), and she has had six healthy living children.

CASE II.—Mrs J. was married in January 1856, and has only menstruated three times up to this date (June 1870), and is now the mother of nine children, seven of whom are alive.

Dr Young remarked that in both cases the patients had menstruated regularly previous to their marriage.

Mr Pridie said he had attended a girl in her first confinement, who was 15 years of age and had never menstruated; and he knew of a lady who had been married for twelve years, had seven children, and had only been seven or eight times unwell.

Dr Keiller said that the general belief was, that ovulation might take place without menstruation. Cases like those described by Dr Young were very rare. He had often heard of cases in which women were said to have menstruated all through their pregnancy, but had never met with one himself.

Dr Craig said that in Mr Pridie's case the menstrual periods most likely corresponded to the times at which the lady fell in the family-way.

Part Fourth.

PERISCOPE.

MEDICINE.

Rothe on the Local Treatment of Phthisis and Diphtheria by Carbolic Acid.—The author, encouraged by the results of the use of carbolic acid in checking the profuse suppuration from burns, coupled with the remarkable results obtained by Piorry from iodine inhalations in phthisis, treated six cases of this complaint with inhalations of carbolic acid. This treatment in all the cases was followed by diminution, amounting in some to disappearance of the local symptoms, rattles, cough, and expectoration; two of these, however, died; the others were restored to apparent health. Fifteen cases of diphtheria were also treated by him with the local application of carbolic acid by means of a brush, coupled first with digitalis, and afterwards with the liquor ammoniæ acetatis, combined with the perchloride of iron. In phthisis, the inhalations were continued for many months, four to six times a day; fifteen to thirty drops of a solution of three parts of acid to thirty of water, and subsequently of five to twenty-five, in an ounce of lukewarm water, were sprayed into the lungs at each sitting. Fever and dyspnœa were not regarded as contra-indications, but recent catarrhal irritation made the inhalations badly borne. Pulmonary hæmorrhage was checked by the inhalations of the perchloride of iron, though our author believes that the carbolic acid itself may act as a styptic. One part of tincture of iodine added to the concentrated solution considerably removed the disagreeable smell of the carbolic acid without impairing its efficacy. The inhalations are best carried on in a closed apartment, because the continued inspirations of the air impregnated with carbolic acid is useful, and may also prevent the infection of others. No ill results were ever observed. —*Berliner Klinische Wochenschrift*, June 6 and 13, 1870.

[The use of carbolic acid in diphtheria is not new, nor does it present any marked advantages, but in phthisis the case is different. Those who have seen the great improvement frequently taking place in those phthisical patients admitted to hospital, mainly as the result of their removal from sources of irritation, which kept up the purulent expectoration, coupled with rest and good food, must hail with pleasure any remedy which tends by its specific action to lessen the suppurative tendency, and thus save the patient's strength. About two years ago, we treated with great success several cases of bronchorrhœa by means of sulphurous and carbolic acid inhalations; and we regret having never hitherto applied it in phthisis, for many cases of which it is admirably suited, not so much as a curative agent—for this, we fear, can never, for pathological reasons, be hoped for—but as an effectual means of checking suppuration, restraining action, and so preserving the patient's strength, postponing as it were the end. Coupled with such analeptics and tonics as cod-liver oil and iron and arsenic, and with the admirable modern sedative, the hydrate of chloral, which not only soothes and gives sleep, but even seems to check the wasting perspirations,—an end also to be attained by the phosphate of lime, which, as well as the long-neglected muriate, is an admirable deobstruent tonic in such cases,—we really have a modern armamentarium of great value, and capable of soothing suffering and prolonging life in all but those horrible cases of florid phthisis over which nothing seems to have any power. We must also recommend, as far superior to the inhalations of the perchloride of iron in hæmoptysis when at all severe, the subcutaneous injection of ergotin. Recently, a patient who bled to thirty-six ounces from the lungs within a few minutes before the physician could get at him, had his hæmorrhage completely checked within three minutes by the subcutaneous injection of five grains of ergotin; and this is by no means a solitary case, though certainly a very severe one. Slighter cases are advantageously treated by means of the liquor ergotæ administered internally.—ED. *Edinburgh Medical Journal.*]

SURGERY.

ARTERIOVENOUS ANEURISM OF THE NECK, WITH REMARKS.—M. Verneuil briefly detailed the circumstances and condition of the following case, and asked the opinion of surgeons on the proper treatment:—

M. X., æt. 40, short in stature, and of good constitution, shot himself accidentally in the neck with a pistol. He bled from the external ear, hardly at all from the wound, and never lost consciousness. I saw him twenty hours after the wound was inflicted. He was in bed, with his head extended, and his face turned to the opposite side from the wound. It was in the right side of the neck, through the sterno-mastoid muscle, about four inches from the sterno-clavicular articulation, and one inch below the bifurcation of the common carotid artery. The wound (not a quarter of an inch in diameter) was filled with a small coagulum. The side of neck was considerably swollen, but did not show any distinct tumour; a very marked *frémissement* centred at the wound, and extended from the mastoid process to the clavicle. Over the same space there was a well-marked double bruit, but neither pulsatile nor expansive. The whole side of the neck was tender, and all movement was painful. There was difficulty in swallowing, and headache, with fever and sleeplessness.

The diagnosis was easy. Wound of the sterno-mastoid muscle and internal jugular vein, and common carotid artery; the bullet is probably arrested by the wall of the pharynx. No evidence exists that either the pneumogastric or sympathetic nerves are wounded. The wound in the artery is very small. The sheath of the vessels is probably full of blood.

I recommended waiting, and advised that a bladder full of ice should be kept constantly applied; the use of opium and digitalis internally, with venesection, if the fever increased, and with the most perfect quiet.

On the 10th day, I again saw the patient; the thrill and bruit had diminished; no pulsation existed; the swelling was less, and a very extensive ecchymosis was seen all over the neck and chest.

What will be the result of the case? I incline to believe that the injury will be permanent, but that no surgical interference is warrantable, except perhaps the use of pressure over the wound in the hope of obliterating the communication between the two vessels.

M. Léon le Fort mentioned eight similar cases that were on record. In one case the carotid was tied; the patient died comatose that night. In another, the patient died on the 15th day, the ball being found in his jugular vein. The others were left alone, and all survived. It is remarkable how much less dangerous such cases are than cases of true aneurism of the same vessels. M. Guyon referred to one of the cases mentioned by M. le Fort; the patient is still alive, and in excellent health, notwithstanding the existence for more than two years of an aneurismal varix between the subclavian artery and the brachio-cephalic vein.

M. Giraldes mentioned a case in which a bullet penetrated the carotid and jugular vein, and lodged between them; the patient went out cured in a month.

M. Tillaux agreed with M. Verneuil that the case should not be interfered with, especially as it was one of aneurismal varix, and not one of varicose aneurism, and consequently might exist without any disturbance to the functions of life. If any treatment became necessary, he should recommend digital compression above and below the communication, as advised by M. Vanzetti.

M. Chassaignac had seen a similar case occur in the leg, after a gunshot wound, and a laced stocking had been sufficient to prevent all inconvenience.—*Gazette des Hôpitaux*, No. 1, 1870.

STATISTICS OF HERNIOTOMY IN FRANCE.—In a late discussion on the amount of trial to be given to the taxis in strangulated hernia, the following contributions to statistics were given:—

M. Desprès stated that in the Parisian hospitals in 1861, 1862, and 1863, 164 cases were operated on, and of these, 138 died, 26 only recovering, or a mortality of 80 per cent. He compares this with the results given by Textor of 54 operations, 24 deaths, and 30 recoveries. He adds, however, that in the hospital for the aged, where the cases were operated on early, the mortality varied from 1 in 3, to 2 in 5.

M. Chassaignac gave his own results, which were 31 operations in eight years in Lariboisière, of which 14 recovered and 17 died, and he regarded this as remarkably good.—*Gazette des Hôpitaux*, No. 35, 1870.

TRAUMATIC TETANUS CURED BY CHLORAL.—M. Verneuil reports the following:—Experiment having proved that strychnia and chloral are antagonistic, we may naturally expect to find that chloral acts against tetanus. This hope seems to be likely to be realized. Liebreich has already reported a successful case; and another, and perhaps even a more remarkable one, has just been met with in my wards in Lariboisière, in a very severe case of general tetanus. A young strong mason had his middle finger bruised by a stone in the end of January. On the eighth day tetanus commenced, and in a short time attacked the face, jaws, neck, muscles of spine and abdomen, and the lower limbs. It was accompanied by excessive and almost constant pain. Morphia was given hypodermically, and chloral by the mouth. The action of the latter was seen to be prompt and decisive in the diminution of spasm, relief to the pain, and profound long-continued sleep. These symptoms returned when the medicine was stopped, again to disappear on its readministration. It was nearly a month before the cure was complete. The daily dose varied from 96 to 192 grains. The stomach did not suffer, and digestion went on well. Another case is being cured by MM. Dubreuil, Lavaux, and Onimus, by chloral and the continued current. It is impossible to say whether successes will become more frequent, but already theory and facts together authorize us in treating this most formidable complication of operations by chloral.—*Gazette des Hôpitaux*, No. 38.

M. Verneuil reports also another case at great length. We can give only an abstract:—A strong man, æt. 20, bruised his finger; trismus came on on the eighth day, increased slowly, till on the fifteenth day he came into hospital. On his admission the symptoms were confined to the face, jaws, and neck. Bromide of potash and opium were used in large doses; but in three days the patient was much worse, in intense pain, and abdomen and limbs affected. Fifteen grains of chloral were then given with morphia, and profound sleep followed, with relaxation of the muscles of mastication. The chloral was then continued in very large doses, as needed by the spasms, with the effect of causing sleep, without interference with the appetite, when he awoke from time to time. Three times the tetanus became worse, each time after a diminution in the dose of chloral. He began slowly to improve after the twenty-eighth day of the disease. In the course of treatment he took more than 3000 grains of chloral, the daily dose varying from 45 to 180 grains. The chloral seemed to produce no bad effect whatever, except perhaps a feeling of weight in the abdomen, which, however, disappeared after a simple purge.

M. Trelat mentioned a case in which delirium, during an erysipelas of the leg, was cured by 45 grains of chloral. M. Larrey pointed out that the case was a chronic one, and, consequently, was one of those cases which we know are amenable to treatment.—*Gazette des Hôpitaux*, No. 43.

Part Fifth.

MEDICAL NEWS.

CORRESPONDENCE.

To the Editor of the Edinburgh Medical Journal.

GOWANLEE, SLAMANNAN, *10th June* 1870.

DEAR SIR,—A few days ago there was brought under my notice an article in the June number of 1869 of the *Edinburgh Medical Journal*, by the late Sir J. Y. Simpson, on "The Existing System of Hospitalism and its Effects," containing a passage referring to my schedule:—"Out of 6 limb-amputations, Dr Boyd has lost only 1, viz., in a primary thigh-amputation in a stoker, for a severe railway accident; he died of shock in two hours. Writing from the same locality, and practising, I believe, among the same class of patients, Mr Waddell reports to me 10 *cases of primary amputations of the limbs*, all of them successful."

Such a remarkable list of successful operations, occurring in the hands of a young gentleman who had only commenced practice here in the autumn of 1866, and whose previous opportunities of independent operating were not likely to have been very extensive, has attracted some attention, and the duty devolved upon me of inquiring into the particulars of an experience so exceptionally prosperous. Having been resident in Slamannan for the last sixteen years, and seldom more than two or three days a year out of the district, anything so striking as an accident involving amputation of a limb could scarcely have occurred without my becoming cognisant of the fact. With the exception of one great toe and two or three fingers, whole or in part, I am certain that not a single amputation has been performed by Mr Waddell in this district, and I believe my evidence will be borne out by many other professional gentlemen in the locality. To set the matter at rest, I made inquiry of all the coal-masters and their managers residing or having their works in Slamannan and surrounding neighbourhood, as to Mr Waddell having performed any limb-amputation connected with their works; but all of these fifteen gentlemen, to whom reference may be made if necessary, denied ever having known or heard of Mr Waddell having amputated either superior or inferior extremity in the case of any one in their employment. I also made inquiries at the station-masters at Slamannan and Longriggend Stations, North British Railway, who both state that no railway accident involving a primary amputation has occurred.

As to allow such unfounded statements to pass unchallenged would be derogatory to the medical profession, obstructive to the progress of scientific research, and more especially, in the present instance, disrespectful to the memory of a great and good man, I feel it my duty publicly to question the accuracy of the return in question, which has been made to the late Sir James Y. Simpson.—I am, dear Sir, yours truly, J. BOYD, M.D.

List of Coal-masters, Managers, etc.

Messrs WM. SCOTT, coal-master, Jewcraig; MATTHEW HAY, coal-master, Stonerigg; ROBERT WILSON, manager, Strathaven Mines; JAMES WATT, Arnloss; JAMES NIMMO, Drumellan, JAMES M'KILLOP, jun., manager; JOHN WILSON, manager, Balquhatston; ROBERT WALKINSHAW, manager, Lochside; JOHN BLACK, Southfield; ROBERT WADDELL, clerk; COLIN CAMPBELL, manager, Avonhead; WILLIAM ROY, manager, Glendykeside; ALEXANDER PARK, manager, Roughrigg; DAVID BAILLIE, station-master, Slamannan; JAMES WRIGHT, station-master, Longriggend.

MANY of our readers will hear with great regret the sudden death of LADY SIMPSON, the widow of Sir James, which took place at Killin, on the evening of Friday the 17th ult.

WE also regret to have to report the continued illness of Mr SYME, whose precarious condition excites the deepest sympathy of his friends.

PUBLICATIONS RECEIVED.

Nathan Allen, M.D.—Population: its Law of Increase. Lowell, 1870.

T. J. Ashton,—Prolapsus, Fistula in Ano, and other Diseases of the Rectum. London, 1870.

Frederick Bateman, M.D.,—On Aphasia. London, 1870.

John Bell, M.D.,—Report on the Relations of Alcohol to Medicine. Philadelphia, 1869.

Donald Campbell Black, M.D.,—Observations on Therapeutics and Disease. London, 1870.

John Chapman, M.D.,—The Medical Institutions of the United Kingdom. London, 1870.

Meredith Chymer, M.D.,—Physiology and Pathology of the Nervous System. New York, 1870.

Herbert Davies, M.D.,—On the Areas of the Four Orifices of the Heart. London, 1870.

C. Donovan,—Handbook of Phrenology. London, 1870.

J. Drysdale, M.D.,—Life and the Equivalence of Force. London, 1870.

J. Fayrer, M.D.,—H. R. H. the Duke of Edinburgh in India. Calcutta, 1870.

Tilbury Fox, M.D.,—Eczema: its Nature and Treatment. London, 1870.

William A. Guy, M.B.,—Public Health. London, 1870.

T. Holmes, M.A.,—System of Surgery, vol. iii. London, 1870.

Carsten Holthouse, F.R.C.S.,—On Hernial and other Tumours of the Groin. London, 1870.

Half-Yearly Compendium of Medical Science, Part V., Jan. 1870. Philadelphia, 1870.

Henry Bence Jones, M.D.,—Life and Letters of Faraday, 2d Edition. London, 1870.

Henry Lee, F.R.C.S.,—Lectures on Practical Pathology and Surgery, 2 vols. London, 1870.

J. F. Meigs, M.D., and W. Pepper, M.D.,—Practical Treatise on the Diseases of Children. Philadelphia, 1870.

James Paget, F.R.S.,—Lectures on Surgical Pathology. London, 1870.

George Ross, M.D.,—Report on Relapsing Fever in St Giles District, 1869-70. London, 1870.

Henry Savage, M.D.,—The Female Pelvic Organs. London, 1870.

H. C. Schmidt, M.D.,—Microscopical Anatomy of the Human Liver. New Orleans, 1869.

Edward Seguin, M.D.,—New Facts and Remarks concerning Idiocy. New York, 1870.

Sir J. Y. Simpson, Bart.,—History of Modern Anæsthetics. Edinburgh, 1870.

Thomas Hawkes Tanner, M.D.—Practical Treatise on the Diseases of Infancy and Children. London, 1870.

Isaac E. Taylor, M.D.,—On Amputation of the Cervix Uteri. New York, 1869.

Twelfth Annual Report of the Scotch Lunacy Commissioners. Edinburgh, 1870.

Transactions of the Obstetrical Society of London, 1869. London, 1870.

John Vansant, M.D.,—On the Physiological Action of Magnetism. New York, 1870.

Hugh Weightman, M.A.,—The Medical Practitioners' Legal Guide. London, 1870.

PERIODICALS RECEIVED.

American Journal of Insanity,—April.

American Journal of the Medical Sciences, —April.

American Journal of Obstetrics,—February.

American Journal of Syphilography and Dermatology,—April.

American Practitioner,—May.

Annales d'Oculistique,—March, April.

Australian Medical Gazette,—February.

Baltimore Medical Journal,—Feb. to May.

Berlin. Klin. Wochenschrift,—Nos. 17 to 25.

Births, Deaths, and Marriages, Monthly Return of,—April, May; Quarterly Return,—March.

British Medical Journal,—April 30 to June 18.

Bulletin Général de Thérapeutique,—April 30 to June 15.

Dublin Quarterly Journal of Medical Science, —May.

Eco de las Ciencias Médicas,—Nos. 14 to 24.

Food Journal,—May, June.

Gazette des Hôpitaux,—Nos. 47 to 70.

Gazette Hebdomadaire de Médecine, etc.,—Nos. 16 to 24.

Gazette Médicale d'Orient,—April.

Gazette Médicale de Paris,—Nos. 21, 22.

Glasgow Medical Journal,—May.

Journal de Médecine Mentale,—March, April.

Journal of Anatomy and Physiology,—May.

Madras Monthly Journal of Medical Science, —April, May.

Medical Press,—April 27 to June 22.

Medical Times and Gazette,—April 30 to June 18.

Nederlandsch Archief voor Genees- en Natuurkunde,—Deel V., 1 Aflevering.

New York Medical Journal,—May, June.

Philadelphia Medical and Surgical Reporter, —March 19 to May 14.

Practitioner,—May, June.

Revue de Thérapeutique Medico-Chirurgicale,—Nos. 8 to 12.

Vierteljahrschrift für die Praktische Heilkunde,—Vierter Band, 1869; Erster Band, 1870.

Virchow's Archiv,—March, April.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Removal of Epithelial Cancer of the Lip.* By THOMAS ANNANDALE, F.R.S.E., Surgeon to the Royal Infirmary, and Lecturer on Surgery.

EPITHELIAL cancer, affecting and confined to the central portions of the lower lip, is easily defined, and its complete removal is readily admitted of by a V-shaped incision, implicating a greater or less amount of the lip, according to the extent of the disease. When, however, the disease approaches, and more especially when it implicates, one or other angle of the lip, its entire removal by a simple V-shaped incision is an uncertain proceeding; for a small portion of the disease at the side next the angle is very liable to be left, owing to the difficulty of cutting beyond it in making the outer incision of the V. Observations on the results of operations for the removal of epithelial cancer of the lower lip have shown me that, in many instances, this disease returns sooner and also more frequently, in cases where its original site has been near the angles, than when it has affected the more central portions of the lip; and I cannot help thinking that the cause of this is, that some of the disease is not rarely left in operating according to the usual plan on the former class of cases.

This being my opinion, I have lately adopted a method of operating in cases of cancer affecting the angles of the lip or tissues near them, which is likely to prove more satisfactory in removing the entire disease. This method, which is similar to one described by Mr Erichsen[1] for the removal and restoration of the whole upper margin of the lip, consists in carrying an incision from the upper edge of the angle of the affected side into the cheek in a direction very slightly upwards, so as to allow a flap including the disease to be turned over and carefully examined. The extent and connexions of the disease being thus accurately determined, the requisite amount of tissue can be removed either by a V-shaped or square incision, whichever is most convenient for the complete extirpation of the growth. If the disease has spread to the gums or periosteum of the jaw, these structures can be thoroughly examined, and the affected portion of the jaw or its alveolar margin, including the gums and teeth, taken away by means of the same incision.

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[1] Mr Erichsen describes this method as a modification of one suggested by Serres.

In one case operated upon a short time ago the disease affected the lip, as shown in Fig. 1. The first stage of the operation consisted in making the incision A B, and the extent of the disease having been determined, the affected portion, with a margin of healthy texture, was removed by the V-shaped incision E C D. E C was then united to D C, the portion of cheek between E and B being drawn inwards so as to compensate for the removed portion of lip. The result was most satisfactory.

Fig. 1.

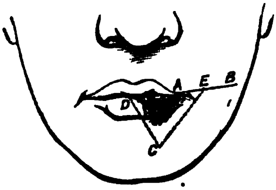
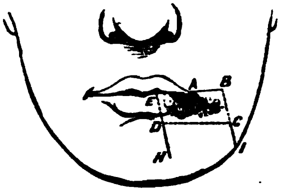


Fig. 2.



In a second case, operated upon last year, the disease, which had been several times removed before the patient came under my care, affected the lip, as shown in Fig. 2. It had also spread to the cheek and gum and to the periosteum of a portion of the alveolar margin of the lower jaw. An incision, A B, was first made as in the former case. The extent of the disease being displayed, a square-shaped portion (B E D C) of the lip and cheek, together with the affected gum and corresponding portion of the alveolar margin of the jaw and teeth, was taken away. In order to remedy the gap made by the removal of the soft tissues, two incisions were carried downwards and slightly outwards from the points D and C to H and I. A square flap was thus obtained by a little dissection, which being drawn upwards was united by its upper angles and sides to the corresponding raw surfaces of the lip and cheek, so as completely and neatly to fill up the deficiency.

It is now nearly nine months since this case was operated upon, and the patient remains perfectly free from any return of the disease.

Should the disease affect the entire lip, and approach or involve both angles, I would recommend a short incision from each angle before the lip is removed by the triangular incision. These short incisions would in no way interfere with the formation of an entire new lip, in the way suggested by Mr Syme.

The advantages, then, claimed for this preliminary incision into the cheek are two:—

First, It allows the extent of the disease to be more accurately determined.

Second, It forms a part of any of the plastic operations employed for the restoration of the lower lip.

I have, on one or two occasions lately, acted upon the same principle in removing cancers affecting the skin and superficial tissues in other situations. Instead of immediately cutting out the growth, a flap of healthy tissue, together with the disease, has been cut and dissected up, carefully examined, and the requisite amount removed; the incision or incisions required for cutting such a flap being made in the most convenient direction.

ARTICLE II.—*On some of the Dangers attending the use of Tangle Tents.* By LAUCHLAN AITKEN, M.D.

(*Read before the Obstetrical Society of Edinburgh.*)

MY attention has frequently been called by students and others to the almost complete silence of gynækological writers on the subject of any dangers attendant on the dilatation of the uterus by tents of various descriptions, and, on looking over my case-books, I have been struck myself by the number of accidents and complications ensuing, especially from the use of the tents made from the sea-tangle. In order to put my professional brethren on their guard, and to ensure the requisite amount of caution in the employment of this valuable method of uterine diagnosis, I determined some time ago to bring the subject before the Obstetrical Society of Edinburgh in a short paper, but this idea circumstances compelled me to abandon at the time. Having lately, however, had some conversation on the subject with an esteemed writer on similar topics, I was led by his remarks again carefully to collect the facts on which I relied for my own opinion on the matter; and the data thus put together constitute the essential features of the present article. I shall restrict myself, in the meantime, to those injurious results I have seen follow the use of the sea-tangle tents, reserving any observations I have to make on the other modes of uterine dilatation for another communication.

Before entering upon the subject-matter of the paper, however, I cannot forbear reminding you that the idea of dilating the womb for the purposes of diagnosis and treatment was one of the many products of the fertile genius of my late friend and master, Sir James Simpson; and this very invention, along with that of the proper use of the uterine sound, would in themselves have succeeded in making him famous as a gynækologist, even if he had never written another word on the diagnosis or treatment of the diseases of women. It was as early as the year 1844 that Sir James Simpson first wrote an article on the subject of sponge tents in the *Monthly Journal of Medical Science.*

The sea-tangle, *Laminaria digitata*, was only recommended in the year 1862[1] by Dr Sloan of Ayr, as a substance which when dried expanded greatly after its immersion in fluids, and it was principally owing to the influence and example of Professor Simpson that it came to be extensively used by the profession generally as a convenient means of dilating the cervix. Of late years it has somewhat fallen into disuse, mainly owing to the fact that sponge tents are now much better prepared and can be had of smaller diameter than formerly, and partly also by both sponge and tangle tents having been to a slight extent superseded by the dilating bags which go under the name of Dr Barnes.[2] My own opinion, however, is still strongly in favour of the use of the sea-tangle in those patients in whom the cervix is very narrow, or in whom there is some stricture. In fact, it is only the smallest variety of tent that can then be introduced, so that we are frequently compelled, in such a case, to accept the tangle tent as an unavoidable necessity.

That I have no desire to exaggerate the importance of this subject will, I hope, appear from the following observations; but I must first direct attention to the remarks made on the matter by the authors who have written the most recent gynækological text-books in this and other countries. To take one English author, for example, Dr Graily Hewitt, in the second edition of his work on the Diseases of Women, makes little or no reference to the occasional bad effects of dilatation of the cervix in those paragraphs in which he speaks of tents, and only incidentally mentions, in treating of cellulitis, that their employment may occasionally give rise to that form of pelvic inflammation. Churchill, so far as I know, does not once allude to the subject in his important and well-known work, and of West's book no edition has been published since 1864, when the tents of laminaria were necessarily only imperfectly known. Of foreign authors, Courty of Montpellier, in his "Traité Pratique des Maladies de l'Utérus," also passes over the dangers attending cervical dilatation almost without remark, and even ventures on the assertion, that it is perfectly safe if the dilatation be not conducted too rapidly. Scanzoni,[3] too, whom we may look upon as the representative of German progress in this department of medicine, while lauding the advantages of the laminaria—its cleanliness, facility of application, and its equal dilating qualities—makes no mention of any inconveniences attending its employment, except a casual reference, at page 382, to a case of pelvic abscess produced by the use of two tents in succession, and which seems to have been under treatment at the time he was writing.

While our ordinary English and some foreign text-books thus almost ignore the existence of the dangers I shall subsequently allude to, it must be confessed that other authors, greatly to their credit, have not been so reticent. Thus, in the treatise of Female Diseases by Dr Thomas of New York, published at Philadelphia in 1868, mention is made of a fatal case of tetanus following the employment of two tents, and the author also alludes to other severe complications he has had occasion to notice. In the second edition of Nonat's well-known work,[1] he expresses himself with great reserve on this subject, which he speaks of under the name of soft dilatation, "dilatation molle," and enters minutely into the cautions required, and the methods to be adopted, to avoid the many inconveniences and dangers to which the tents may give rise. He does not, however, ever seem himself to have experimented with the laminaria.

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[1] Glasgow Medical Journal, October 1862.

[2] The original suggestion of elastic dilating bags was undoubtedly made by Dr Keiller of Edinburgh.

[3] Lehrbuch d. Krankheiten d. weiblichen Sexualorgane.

In leaving those preliminary remarks, and now entering upon the real subject of this paper, I may point out that what has seemed to me the most common of all the evil consequences arising from the use of the tents, has been the development of inflammatory action in the pelvic serous membrane or cellular tissue; next, the production of endometritis; and, finally, the causation of a number of what may be looked on as accidental complications,—such as hæmorrhage from the uterus, pelvic hæmatocele, laceration of the cervical wall, spasmodic contractions of uterine muscular tissue, hysterical convulsions, and other minor mishaps.[2] But though many of those complications have been very alarming at the time, and productive of anything but good to the patient, I have never known a fatal case in which I could directly attribute the death to the use of the tent, although I have certainly seen patients succumb to the effects of uterine operations for the performance of which the cervical cavity had necessarily been enlarged.

In a former communication[3] to this Society, I alluded to the difficulty of determining the manner in which the traumatic forms of pelvic peritonitis and cellulitis originated. In bringing before you now a few cases in which the tangle tent was obviously the cause of the attack, I must still continue to profess my ignorance of the way in which the inflammation is lighted up. There can be no doubt that endometritis exists in many of those cases, but I still hesitate to accept its progression along the mucous membrane of the Fallopian tubes as an escape from our difficulty, and I must retain this opinion until post-mortem examination has satisfied myself or others of the reality of such an occurrence. My own observations, too, have never convinced me that a genuine *metritis* was in any case the precursor of an attack of traumatic pelvic peritonitis or cellulitis.

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[1] Traité Pratique des Maladies de l'Utérus, de ses Annexes, et des Organes Génitaux Externes. Paris, 1869.

[2] Pyæmia has also been mentioned as having been observed to follow the use of tents, but I have only given those complications which have come under my own observation.

[3] On Pelvic Peritonitis and Pelvic Cellulitis, with Illustrative Cases.—*Edinburgh Medical Journal* for April 1870.

Among several cases of pelvic peritonitis which I have seen follow the use of the laminaria tents, the following is an example of the almost astonishing rapidity with which in many instances such an attack is developed, and of the equally surprising quickness with which the inflammatory products frequently disappear:—

Jessie C., æt. 29, admitted to Ward XII., Royal Infirmary, 10th Feb. 1868. Patient has been married about two years. Two months after marriage she had an abortion, and has never menstruated regularly since, usually only every five or six weeks, and always with great pain. She is generally very sick before the periods. Has also pain in passing water. Two days after admission, a tolerably thick tangle tent was introduced into the cervix without difficulty, and was removed at night. The next day she complained of great pain in the pelvis, and, on pressure, above the pubes. The pulse was 120, tongue furred and dry. On vaginal examination, on the second day after the tangle tent had been withdrawn, a swelling was found on both sides of the uterus, filling up the pelvis. The womb was fixed all round, and very sensitive to the touch. A good deal of sanguinolent discharge from the os. During the subsequent few days the swelling became harder; but the pain diminishing, and the general symptoms improving, she was put on a tonic treatment, and very rapidly recovered, the inflammatory products having, I find by the case-book, entirely disappeared in less than a month from the date on which the dilatation was effected. On the 19th March she was quite well, and was dismissed.

In this woman I had discovered nothing in the state of the uterus or its appendages to contra-indicate the employment of the tent, which I considered necessary for diagnostic purposes, nor was there any precaution wanting, as I then thought, that ought to be taken in all such cases; but, in spite of these, the limited peritonitis began almost immediately upon the removal of the tent, and was easily detected by vaginal examination two days afterwards. Fortunately the inflammation ran its course very rapidly, and its products entirely disappeared, leaving the patient little or none the worse; but this is by no means always the case, and the following history shows that we ought not to allow ourselves to be lulled into a false security:—

Harriet N., unmarried, æt. 25, was admitted into Ward XII. on 30th November 1868. She first began to menstruate at the age of eighteen, the periods being always painful, and the discharge often too profuse, but during the last two years the dysmenorrhœa has been getting worse. Some ten days before admission, a tangle tent had been introduced and withdrawn, and the patient seems to have acted foolishly, getting out of bed the same day. Some days after this she first felt a pain in the left iliac fossa, and for a few inches above the pubes. She was obliged again to take to bed, and I then saw her, and, detecting the commencement of an attack of pelvic peritonitis, sent her to the Infirmary. On admittance, some hardness could be felt in the left iliac fossa, and there was great tenderness there; a heavy bloody discharge from the vagina. Internally violent pain was elicited by pressing on the left side of the cervix, and the uterus, very painful to the touch, was apparently immobile in the centre of the cavity. She was ordered a milk diet, and small quantities of wine and brandy at frequent intervals, as she seemed very weak. By 11th December the pulse had fallen to 104, and was of fair strength; and it is noted that the pain seemed now more hysterical than real, a light touch eliciting cries of agony, while heavy pressure seemed well borne. About the middle of the month she began to cough, and harsh breathing was heard by the stethoscope at the apex of the left lung. She was then put on tonics, and gradually but slowly regained strength. The next menstrual period passed without much pain or any recurrence of the inflammatory attack; but when she was dismissed in the middle of January there was still considerable uterine immobility, and the same suspicious sign in the left lung.

This poor girl, through her own imprudence, brought on an attack, which, by ending in the fixation of the uterus, must, one should say, rather have tended to aggravate than to relieve the dysmenorrhœa from which she suffered; and, besides, she appears to have shown symptoms of the commencement of some lung mischief when in the ward, although this may only have been an accidental complication. That great care and many precautions are necessary, both on the part of physician and patient, in handling such dangerous tools, must be evident to any one who impartially considers such an unfortunate result; but to this subject I shall presently allude at greater length.

In the meantime, I conclude those remarks on pelvic inflammatory attacks produced by tangle tents, with the details of a case of cellulitis which originated from a like cause.

Jane V., æt. 33, admitted to Ward XII., 28th October 1868, complaining of a feeling of weakness in her right side, which had existed for the preceding nine years, but just before admission had become much worse. She had been married fourteen years, had had nine labours, five of which had been instrumental, and six of the children had been still-born. The last labour, which had been in April 1866, had been attended with such severe flooding that she was unable to rise from bed for three months afterwards. Since that date, menstruation had been very irregular, occurring at intervals of three weeks, a fortnight, or eight days. During menstruation the discharge is very profuse, and sometimes lasts for fourteen days. She also suffers from paroxysms of sharp pain in the left breast, occurring chiefly when the discharge is most profuse, and accompanied by violent palpitations. The menses, which appeared the day after she entered the ward, continued very profusely until the 14th November; and, on vaginal examination after their cessation, nothing being discovered but an enlarged uterus, it was resolved to dilate the cervix. On 16th November a tangle tent was introduced; on 18th November the cervix was fully dilated, and found to be ulcerated near the internal os, and to this part some solid nitrate of silver was applied the next day. On the 20th, she began to complain of great pain over the lower part of the abdomen, the pulse had risen to 100, and the vagina was abnormally hot. She was ordered some liniment of belladonna and chloroform, hot-water injections, and morphia in form of suppository. By the 25th the pain had materially increased; but it was only on this day that a round tender tumour, about the size of a small orange, was detected in the right iliac region, and apparently adherent to the iliac bones. On the 29th it is noted that this tumour was not so distinct, there being only abnormal dulness on percussion. On the 10th of December there was nothing to be felt in the fossa, but pressure still caused pain, and by the 18th of the same month she was well enough to be out of bed. The treatment was tonic for the most part, with local soothing applications to the painful part.

My reasons for considering this a case of cellulitis have been dwelt upon at some length in the article already quoted, and I need not here enter again into the minutiæ of a differential diagnosis. It was a mild case, presenting no alarming features whatever, and leaving no bad effects behind. Some of you may look upon the nitrate of silver as a more likely cause of the inflammatory attack than the tent; but that caustic was applied so lightly and superficially, that I do not think it could possibly have produced such an injurious effect. Certainly it is true—and this truth ought to be well borne in mind by medical men—that even a trivial application or operation has an element of danger added to it by the previous dilatation of the womb, which is wanting in cases where no such enlargement of the cervical and uterine cavities is required.

To the next branch of my subject I shall only very briefly refer, as, although I have often seen endometritis follow the use of the laminaria tents, I have never seen any obstinate cases, or even any which did not yield rapidly and easily to appropriate treatment. That the smoother the tent is, and the more carefully prepared, the less likely will it be to give rise to any cervical irritation, is a self-evident proposition; and of course such tents ought never to be used, except under the most urgent circumstances, when there exists any previous inflammation in the mucous membrane of the cervix or womb. I am convinced, however, that the tents of laminaria are much less dangerous in this respect than sponge tents, which, however well prepared, must inevitably have rougher surfaces, and which also, from the more rapid decomposition of the fluids they absorb into their cellular structure, are far more adapted to originate and keep up any irritation in a sensitive mucous membrane.

Amongst the accidental complications to which I have already referred as occasional sequelæ of the use of those tents, I need only now mention two, as any others which I have seen have been but of little moment, leaving no bad effects behind. These two accidents, the details of which I think it essential to relate, were a case of pelvic hæmatocele and one of perforation of the cervical wall.

The hæmatocele was produced in this way:—I was hurriedly called some ten miles into the country to see an old patient of my own who was supposed to be dying from hæmorrhage, but no particulars could be ascertained before starting. On arriving, I found that the lady was already so prostrate that it was imperative to stop the bleeding at once. As the hæmorrhage was evidently from the uterus, and probably from a threatened abortion, the patient having passed a couple of menstrual periods, I at once proceeded to dilate the cervix, which was quite unopened, by means of a tangle tent, in order to get at the ovum. The result was satisfactory, so far as saving the patient's life was concerned; but it was only at the expense of a retro-uterine hæmatocele, which appeared the day after the tent was removed, and confined her long to bed.

The other case—that of laceration of the cervix—was more unfortunate still, as it was evidently the result of a very careless use of the tent. The case occurred in Ward XII.; but as I am relying on my memory for the particulars, I cannot say that I recollect for what purpose the tent was used. Suffice it to say, that it must have been introduced too far within the cervix, as, on examination eight hours afterwards, I found that the os had closed in over the tent, the lower end of which was now buried in the posterior cervical wall, through which it had nearly perforated. After some fruitless efforts at extraction, I was forced to cut open the cervix with long curved scissors before I could effect its removal. Although I have seen other cases in which a similar result has followed the use of tents in inexperienced hands, I certainly never attended any patient who so narrowly escaped a disastrous issue.

So far I have traced, to the best of my recollection, the bad effects which occasionally follow the use of dilating tents made from the laminaria. But I do not wish to imbue any one with the notion that the danger attending their use is so great as to prohibit us from ever having recourse to so effectual a method of diagnosis and treatment. On the contrary, I am so fully aware myself of their value in proper hands, that the accidents which I have related have only impressed me with the necessity of adopting some means to confine such unfortunate events within the narrowest limits; and since I began to employ the precautions I shall immediately detail—precautions which are not given in any of the ordinary English text-books—I have never had any worse result from the use of the tents than the production of slight and transitory forms of cervical catarrh. Those precautions are chiefly:—

1st, The non-employment of the tent, so long as we are convinced that there exists any endometritis, or any recent perimetric inflammation, of whatever nature it may be.[1]

2d, Tents ought only to be used in the intervals between, never (except under the most urgent circumstances) either during, immediately before, or immediately after a menstrual period.

3d, The greatest care must be taken in the introduction and removal of tents to avoid any violence or force. Any bleeding caused at either time ought not to be interfered with unless it become serious.

4th, The tent should only be used when the patient can remain recumbent from the moment of its introduction to a period after its removal, which varies with each patient. This period ought never to be less than twelve hours, and should usually be much longer.

5th, If the patient complains of pain from the action of the tent, an opiate of some kind—a suppository of morphia often suits—a dose of chloral, or warm water injections, ought to be employed to diminish or relieve it, and thus prevent that restlessness which the pain will inevitably cause, and which is the surest means of producing inflammatory action in the womb or adjoining serous membrane and cellular tissue.

6th, If successive tents require to be employed, it is much safer to allow an interval of twelve hours to elapse between each. A greater interval even would be preferable; but the cervix often closes up rapidly after its dilatation, and if we were to wait much longer we should frequently have to begin *de novo*.

7th, The tangle tent is fully expanded, and ought to be withdrawn, in eight to ten hours after its introduction.

I have thus attempted a slight sketch of some of the accidents following the use of the sea-tangle tents, and of the precautions which such unfortunate results as I have myself witnessed and treated have forced me to adopt. I repeat, that since I have used those precautionary measures, I have never had to accuse myself of having been the cause of any accident which might have been reasonably avoided; and it is with the idea that my own experience may be the means of keeping other professional brethren from being stranded on similar shoals, that I have written this paper, and that I have attempted conscientiously, if inadequately, to depict the dangers, which may, in most cases, be so easily prevented.

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[1] To this head we ought to add that it is never very safe to use tents where there has existed any previous perimetric inflammation which has left bad effects behind, either adhesions, for instance, or chronic inflammatory products

APPENDIX *on the Difficulties occasionally met with in the Introduction and Removal of Tents.*

As the introduction of a tent into the uterine cavity may seem a very simple operation, and one not likely to be more difficult to perform than the use of a sound, I have thought it necessary to add to the foregoing remarks a few observations on some cases which have given me no little trouble in their treatment, and to explain to the best of my ability the difficulties that a youthful practitioner will probably meet with in his first attempts in this direction. That those remarks are not altogether superfluous I can vouch for, as I have seen the most experienced gynækologists more than once completely foiled in attempting to introduce a dilating tent into the cervix.

Whether the tent we intend to use be of sponge or sea-tangle, it is decidedly preferable to commence by expanding the vagina to some extent by a speculum, and for this purpose no better instrument can be found than that of Dr Marion Sims.[1] In the introduction of the sea-tangle it is by no means so absolutely necessary to use the speculum as in the case of the sponge tents; as the latter, however well prepared, so rapidly imbibe the fluids of the vagina, if allowed to come in contact with them, that they become soft and flexible, and consequently useless, before they can be introduced into the os uteri, and the employment of the ordinary form of Sims's speculum necessarily entails the presence of a third person,[2] which is occasionally very strongly objected to. The use of any of the varieties of bivalve specula prevents us, of course, from grasping and drawing forward the anterior lip of the os with the tenaculum, and thus frustrates one of the principal purposes for which the speculum is required at all. For the introduction of the tents, too, we require to be provided with different instruments. For the sponge and hollow tangle tents, I generally employ the form of bent stilette, long ago recommended by Sir James Simpson; while the solid laminaria tent is more firmly grasped and more easily manipulated by a long-handled and roughly-serrated modification of the polypus forceps.

Having thus settled the preliminaries, it is by no means difficult, in the great majority of cases, to slip the tent into the os and cervix, but occasionally it happens that you meet with some obstacle to this easy entrance. The most common impediment usually arises from the catching of the point of the tent in one of the folds of the cervical mucous membrane. But this only requires to be mentioned to suggest its own remedy. Much more difficulty, however, is experienced in overcoming the real stricture which often exists at the os internum. It ought never to be forgotten that the internal or cervico-uterine orifice[1] is the narrowest point of the canal, and that it is here that the point of the sound is most commonly arrested. In selecting the size of tent to be first used, we ought consequently to be guided by the information which a previous use of the probe has given us of the state of this orifice. In some few cases it will be found impossible to pass a tent, and then the only rational treatment is to dilate the stricture by the pressure of metallic bougies[2] of gradually-increased diameter. I have seen two such cases in which this was the only feasible treatment. In one of them the strictured internal orifice had apparently been produced by a protracted labour; in the other, it was due to the existence of a fibrous tumour low down in the anterior wall. The treatment would, of course, be similar if the stricture were at any other part of the cervix except the external os. Of spasmodic stricture of the os internum, which is mentioned as a common occurrence, after the use of the sound, by almost all gynækologists, I know nothing from personal experience. We are bound to believe that it occurs, as the weight of authority seems in favour of the statement, but I cannot think that it is so frequent an event as is supposed. Its treatment, if it form an impediment to the introduction of the tent, is obviously to chloroform your patient.

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[1] The instrument described in the *Lancet* of 14th May by Dr Meadows might also do for this purpose, though scarcely so well as Sims's.

[2] One of its advantages, Dr Sims maintains, with some plausibility.

Of all the impediments to the entrance of the tent, however, the most annoying, and probably the most common, is the result of a flexion of the body of the womb on its cervix. The internal orifice, at or near which the flexion almost invariably occurs, is thus most effectually strictured, and the position of the womb is such that it is next to impossible to introduce a straight tent. I ought here to remark, that if the flexion has been produced by adhesions of the uterus to the surrounding parts from bygone inflammatory action, a tent ought never to be used. At least, I know of scarcely any circumstances which would justify the dilatation of the cervix and body of the womb under the imminent risk of a renewal of the peritonitis. To get over the difficulty, I at first thought of employing tents bent to some extent in the same direction as the axis of the flexed uterus, but this was proved by trial to be much better in theory than practice, as at the angle of flexion of the uterus the tent invariably became deeply indented, and thus merely enlarged the cervical and uterine cavities, leaving a strictured part between. I now find that the only real escape from this difficulty is to employ a probe to replace the uterus as nearly as possible in its normal direction, and then to slip in the tent by the side of the metallic director.

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[1] Of course I am speaking of the normal uterus. I believe that the os externum is the most common seat of congenital or acquired stricture, but a stricture there would probably require division before the tent could be employed at all.

[2] Previous incision of the internal orifice could not be recommended if the tent required to be used immediately afterwards. This is by far too dangerous a proceeding to be practised merely for the diagnostic purposes I am here speaking of.

In extracting the tent, the only common source of difficulty arises from its occasional unequal dilatation. It sometimes happens that the existence of a stricture of the cervix, whether it be at the internal os or any other part, may produce such an indentation of the tent as to give it an hour-glass form. When this rather awkward result ensues, we ought never to use any great force in our efforts at removing the tent. Grasping the lower end firmly with a three-toothed vulsellum or large artery forceps, and gently moving our hand backwards and forwards with a to-and-fro motion, we can usually succeed without any great traction in bringing out the tent. A much more formidable complication I have already mentioned, as occasionally following the use of a tent which has been pushed too far within the uterus, and over which the os externum has closed. Such a result, however, can only be the sequence either of great carelessness in the use of the tent, or of the employment of too short a one; and, to avoid it, we ought never to introduce a tent under two inches in length. In extracting the tent, Sims recommended us invariably to dilate the vagina by the speculum; but this I seldom, if ever, do, and I never even use any instrument for the extraction, unless the string which is attached to the tent gives way,—a frequent occurrence, however, owing to its often becoming softened by its prolonged soaking in the vaginal discharges. The entrance of air into the dilated cervical and uterine cavities is a danger I certainly never met with, and can scarcely even conceive possible: or even if it did occur, it does not seem likely that it would produce any very injurious result.

ARTICLE III.—*An Inquiry as to the Cause of Sleep.* By F. P. ATKINSON, M.D., C.M., etc., late Surgeon St Bartholomew's Hospital, Chatham, and Royal South London Dispensary.

SLEEP is not only one of the greatest luxuries we possess, but it is also one of the greatest necessities to our being. It stands in exactly the same relation to the wants of the nervous system as food does to that of the muscular—complete deprivation of either sleep or food causes death; and a scanty supply of either, wasting and inertia. It is the sole curative agent in many an apparently hopeless disease, and the only thread, as it were, upon which life hangs; whilst insomnia is almost always the precursor of some dangerous malady, and a symptom sufficient to excite serious apprehensions. Seeing, then, how essential sleep is to our existence, and what an important part it plays both in the relief and cure of disease, we cannot inquire too much as to the means by which it is ordinarily brought about. Different opinions have at different times been held as to its immediate cause, and arguments have been advanced to show it to be due to,—

1. Anæmia of brain.
2. Congestion of brain or distention of the vessels of the choroid plexus pressing on the sides of the ventricles.
3. Lessened rate of circulation.

It is our duty therefore to examine each of these different theories, and see whether the results of any other experiments can be brought forward to support or overthrow them.

The arguments for its being due to anæmia of the brain are derived from observations upon living animals in which a portion of the skull had been removed. Mr Durham explains the cause of the anæmia thus:—The results of chemical changes in the nervous matter, which necessarily accompany the action of the brain—the debris, so to speak—impede the action by which they were produced, and a state of comparative anæmia follows. Mr C. H. Moore, the latest writer, I believe, on the subject, says that this anæmia results from a contraction of the arterial trunks at the base of the brain, and of the bloodvessels of the pia mater, brought about by a stimulus originating in the ganglia of the sympathetic.

Some of the reasons put forward for its being due to congestion of brain are,—

1. Full-blooded people are always the best sleepers.
2. The recumbent position, which is supposed to induce a flow of blood to the head, is most favourable to sleep.
3. Consciousness is instantly suppressed by pressure on the brain.

In order to show it to be due to a lessened rate of circulation, it is said,—

1. Sluggish functions are always attended with a sluggish pulse.
2. Hibernating animals, and plants during winter, have a very slow circulation.
3. Sleep comes on in that posture and that period of the day when the circulation is most sluggish.

The opinion, I believe, most commonly held at the present time is, that during sleep the brain is anæmic, and the experiments carried out by Mr Durham and Dr Hammond (of New York), together with the ophthalmoscopic observations of Dr Hughlings-Jackson, are supposed to prove conclusively the correctness of the idea which was previously held by Blumenbach, Dendy, Dr Alexander Fleming, and others.

Unfortunately, however, the means which were taken to ascertain the state of the circulation during sleep entirely altered the conditions under which the brain is usually placed. The cranium, ordinarily speaking, is an air-tight and unyielding cavity, and consequently, from the fact of every square inch of the body being subject to a pressure of 15 lbs., must always contain the same amount of fluid; but when once air is allowed to gain admission, the conditions are altogether changed, and an alteration in the quantity of the circulating fluid may readily take place.

The experiments of Dr Kellie of Leith upon cats and dogs show these facts most clearly. Some of the animals were bled to death by opening the carotid or femoral arteries, others by opening the jugular veins. In some, the carotids were first tied, to diminish the quantity of blood sent to the brain, and the jugulars were then opened with the view of emptying the vessels of the brain to the greatest extent possible; while in others, the jugulars were first secured to prevent as much as possible the return of blood from the brain, and one of the carotids was then opened. From the whole inquiry, he considered it impossible to lessen the quantity of the blood in the brain by arteriotomy or venesection, and that when by profuse hæmorrhages the vessels of the cranium are drained of any sensible portion of red blood, there is commonly an equivalent to this spoliation in the increased circulation or effusion of serum. He made other experiments upon the effects of position immediately after death from strangulation and hanging. He also trephined a portion of the skull in some animals and then bled them to death. In these last cases the brain was sensibly depressed, and a space left capable of containing a teaspoonful of water. The ophthalmoscopic observations of Dr Hughlings-Jackson, instead of proving that sleep is due to anæmia of the brain, to a great extent combat this idea; for it would appear that while the arteries of the optic disc are anæmic, the veins are congested; and, taking this as an index of the brain circulation, we may infer that the quantity of blood in the cranium during sleep and wakefulness is more or less the same, and that the quality only becomes altered. Since, then, the quantity of blood in the brain cannot be materially altered, it follows that sleep cannot be due, ordinarily speaking, either to anæmia or congestion; and therefore it now only remains for us to examine the third cause assigned,—viz., lessened rate of circulation. First, then, it is an admitted fact, that the quantity of arterial blood supplied to an organ varies directly in proportion to its activity. This applies to the brain in common with all other parts of the human frame. The only difference between the circulation of the brain and that of other organs is, that the total quantity of blood (venous and arterial blood combined) always remains the same. Now, to cause an increased supply of blood to a part, there must be both an increased *vis a fronte* and *vis a tergo*, or, in other words, a greater attractive and propelling force. A diminished supply is always, under ordinary circumstances, the result of a lesser demand.

The various functional and morbid conditions which may cause an insufficient supply of arterial blood to the brain are,—

1. Weakness, dilatation, fatty or valvular disease of the heart.
2. Ossification of the bloodvessels or aneurism.
3. Tumours pressing upon the arteries or veins.

4. Altered state of the blood.
5. Disease of the lungs.
6. Impure atmosphere.

And in all these there is more or less tendency to sleep.

Let us now examine the circumstances under which sleep usually comes on, and then take into consideration the various causes which, generally speaking, banish and induce it.

It comes on, for the most part, at that time of the day and in that position in which the circulation is most sluggish,—viz., at night, and in the horizontal posture. As a rule, the pulse becomes slower towards evening, and, moreover, is less frequent in the horizontal than in the erect position; consequently these two circumstances, inasmuch as they favour a slow circulation, favour sleep; but there are other causes which aid its production,—viz., the darkness and silence of night, the absence of impressions upon the senses, and nervous exhaustion. This exhaustion of the nervous system acts upon the heart and bloodvessels, and the languid circulation consequent thereon in its turn reacts upon the brain. Sleep, therefore, results from the fatigue of the nervous system, the absence of impressions upon the senses, and the sluggish circulation through the brain: and a non-fulfilment of any one of these conditions is always accompanied by restlessness and insomnia.

I shall now enumerate a few of the cases in which sleeplessness is generally present, and then describe the means to be adopted in order to promote sleep. It occurs in delirium tremens, eruptive diseases, acute mania, cases of severe mental anxiety, and persons subject to exciting passions. The remedies of most service in these cases are, bromide of potassium, bromide of ammonium, hydrate of chloral, belladonna, etc., inasmuch as they tend to a greater or lesser degree to control the capillary circulation. The application of anæsthetic ether to the surface of the scalp will also be found beneficial. It must not at the same time be forgotten that it is all-important to see that the patient has plenty of support. Injudicious feeding, indigestion, want of food, worms, cold feet, etc., cause insomnia, by producing sympathetic irritation of the brain and increased circulation; and the proper treatment in all of these cases is to remove the exciting cause. A person ordinarily wakes out of sleep owing to the fact of there being some peripheral irritation, or from the reason that all the organs, having received their due amount of rest, are in a fit state to resume their natural functions. One question now remains to be answered. Since healthy sleep results from a sluggish circulation, or, in other words, an increase in the quantity of venous blood, what constitutes the difference between this and coma? Healthy sleep is a state in which nervous power is dormant, or, in other words, a condition in which it is capable of being quickly roused into action by the usual nervine stimuli. The sleep of coma is really a condition in which the nerve-power is paralyzed, or in which the body is altogether or partially incapable of answering to the usual nervine stimuli.

That the same cause is at work in coma as in natural sleep is shown by the fact that opium in different doses will produce both these conditions. Some persons in perfect health will often have during sleep the stertorous breathing characteristic of coma. This in them simply indicates the soundness of the sleep; but nevertheless, under certain circumstances, it might readily become a symptom of very serious import. There are two forms of coma, viz.:—

1. *The Congestive*, in which the quantity of venous blood circulating in the brain is very excessive and the heart's action very laboured. The patient is very difficult to rouse by the ordinary stimuli, and when roused soon lapses into his former condition; but there is no paralysis.

Venesection here does good by diminishing the quantity of blood in the body, and thus setting up a greater attractive force.

2. *Apoplectic*, which may be divided into (*a*) sanguineous, in which blood is effused; (*b*) serous, in which serum is effused. The serous effusion arises from extreme poverty of blood. Both are accompanied by paralysis, and require to be treated by rest and support.

Syncope is a condition somewhat resembling that of congestive coma. The quantity of arterial blood in both cases is small and the venous great. In both, the nervous system is capable of being raised into action with difficulty. Here, however, the excessive quantity of venous blood in the brain is consequent on the small arterial supply and feeble action of the heart; while in the case of congestive coma the small arterial supply and laboured action of the heart are due to venous congestion. Here stimulants, as ammonia, brandy, etc., are required; there depressants, in the shape of venesection, cupping, etc.

I shall now conclude this paper by remarking, that the more carefully we investigate the cause of insomnia in each particular case, the more certain shall we be as to our choice of remedies, and in our efforts to bring about the desired result.

ARTICLE IV.—*On the Influence exerted by Chloral on the Pain of Parturition.* By E. LAMBERT, Esq., Paris, late House-Surgeon in the Maternity Hospital, Edinburgh.

(*Read before the Edinburgh Obstetrical Society.*)

THE subject to which I have the honour of drawing the attention of your Society will possess a peculiar interest in your eyes from the fact that it is directly connected with the name of one so justly memorable as Sir James Simpson. It will command this interest at least, that it purports to bring before you and before the profession the facts known to myself in connexion with the later researches of Sir James Simpson in the direction of "obstetric anæsthesia," and I cannot but hope that it may be in the power of others to supplement these by many other observations.

I deeply regret that the few facts here narrated could not be brought collectively under the cognizance of his master-mind, and that I was not permitted to take counsel of his mature experience as thoughts forced themselves upon me during the prosecution of these researches.

When chloral was brought before the profession, Sir James was foremost in prosecuting inquiry into its therapeutic value. I do not know whether he had applied it in private obstetric practice, but his paper on chloral, of 1st January, in the *Medical Times*, makes reference to the subject. He states that he has seen the parturient womb contract regularly whilst the patient was unconscious. During the last fortnight of the year 1869, he had attended, with my colleague Dr Walker, a case in charge of Dr Somerville, but I have no notes of the results. On the 31st December I requested his attendance; the case is related under No. I.; there was absolute intolerance of the medicine. The next case occurred 2d January 1870, and the important results given in No. II. were observed. The last case attended by Sir James Simpson, in connexion with the Maternity practice, dates 4th January, No. III. Chloral, it was apparent, could not claim to supplant chloroform, since it abolished consciousness to a less extent, placing the patient as it were midway between consciousness and unconsciousness, and rendering her incapable of that control which is essential during the close of the second stage; but this admission only placed in a stronger light the admirable properties of the agent when applied to the relief of pain during the first stage of labour, at a period when it is generally conceded that chloroform is hurtful.

As *the* hypnotic of this first stage, chloral stands as yet unrivalled; we have only to remember that opium, our only sure refuge, must be administered with the knowledge that we are conspiring, though for a higher end, against the course of labour.

It is with an earnest wish to further the progress of our art that I invite the attention of your Society to the bare statement of the whole facts which have come under my observation. None more than yourselves will feel the interest that attaches to researches in this particular direction—none, I am sure, will be more anxious to employ the keen edge of criticism to the profit of experimental science.

CASE I.—Bridget M'T., aged 25, in her second pregnancy, was admitted to the Maternity Hospital at 8 A.M., 31st December 1869. The os was fully dilated, the membranes entire, the head in first position, resting on the brim of the pelvis. The pains, carefully noted, were recurring about every five minutes from 8.50 A.M. to 10. Sir James Simpson, accompanied by Dr Jenkins, U.S., and

Dr Coghill, attended at 10.15, and chloral ʒi. was then administered. It was vomited six minutes after; and, at 10.28, ʒij. were given in an enema; this was voided five minutes after. At 10.40 the patient had slight rigors, and from 10.45 to 11 there was marked somnolence in the intervals of pain. She then said she felt sleepy, but could not sleep, and this sensation passed away shortly. At 11.18 ʒi. was again given and vomited immediately. This was followed by rigors and somnolence, as above, for the space of fifteen minutes. At 11.45 ʒij. were administered in an enema, but voided during the next pain. At 12.15 the membranes were ruptured artificially. From 12 to 1, the bowels were moved twice. The patient had constant eructations, and vomited twice. The labour terminated at 3.45; the pains remained throughout efficient.

Case II.—Agnes P., aged 22. Primipara. Admitted to the Maternity Hospital at 6 p.m., 2d January 1870. At 7.30, the os was the size of a half-crown; the head, first position, was entering the pelvis, the membranes entire. The pains were strong, at very regular intervals of five minutes. In the intervals of pain has constant slight rigors, which become much stronger during the pain. At 9.25 the membranes ruptured spontaneously, and at 9.30 the head was on the perinæum.

Sir James Simpson attended at 9.50; chloral ʒi. was then administered. 9.55.—Says she feels the pains less. At 10, ʒi. again given; the rigors ceased, and the patient seemed to sleep in the interval of a pain. At 10.4, she is remarkably calm. At 10.9, there was a slight rigor, then a severe pain, and a sharp cry; and at 10.10 the head was born. Answered questions; said the pains were much less severe since she took the medicine, and that she slept in the intervals. 10.30.—Sleeping very quietly, answered a question, and fell off again immediately. Removed placenta from vagina without any indications of consciousness on the part of the patient. 3.30.—Woke and said, "Where am I?" Hearing her child cry, said, "Whose child is that?" Did not remember birth of child; took food, and slept soundly till morning. Questioned next morning, she affirmed that she only remembered looking up and seeing three doctors; remembered taking the medicine and nothing more; knew nothing of the birth of the child.

Dr Gordon accompanied Sir James Simpson. She made an excellent recovery. Her child had spina bifida. The case was reported to the Society by Dr C. Bell. Chloral was administered to the infant, whose horrible cries were quieted by it; the spasms were also stopped by its influence.

Case III.—Margaret O., aged 26. Primipara. Admitted to the Maternity Hospital at 5 p.m., 4th January 1870. Had felt pains since 7 p.m., 3d January. At 8 a.m., 4th January, saw a doctor, who told her she was in labour. Took train from Stirling, and was directed to Maternity, Edinburgh.

4th Jan., 5 P.M.—Os size of a shilling, rigid. Membranes entire. Head, first position, entering pelvic cavity. Pains strong.

5th, 12 noon.—No progress. Pains apparently very severe. Patient much excited during their recurrence, and very unruly. Moans constantly during intervals. Has refused food for twenty-four hours. Pains strong, but intermissions irregular, and pain never absent. Sir James Simpson attended at 12.45. Chloral ʒi. was given. 1.7.—Marked somnolence during intervals of pain. 1.18. —Quiet sleep during intervals. She always gets on her knees during the pains. These appear just as severe, but the intervals are at least two minutes longer, and very regular. She always re-assumes the supine posture before the pain is over, and falls asleep again immediately. 1.48.—Says the pains are very sharp, and complains that medicine is doing no good. Has much difficulty in getting on her knees. Her movements are unsteady. Eyes fixed, haggard; equilibrium uncertain. Ordered not to leave the supine posture. 2.35.—Pains very severe. Still regular. Moans during intervals. 2.48.—Chloral ʒi. 3.10.—Perfect repose during intervals of pain. 4.30.—Again becoming agitated and anxious. 5.30.—Os dilated. 7. —Dr Walker ruptured membranes. 7.30.—Chloral ʒi. From 7.30 to 10, when the head was born, this last dose remained efficient. There was always quiet sleep during intervals, and the pains were not very sharp. At the exit of the head she showed no sign of greater pain. When all was over she said that the medicine had given her great relief, and pointed especially to the sleep she enjoyed in the intervals. Made same statement next morning.

Observation.—The marked effect in this case was to bring about perfect regularity in the recurrence of pains. These occurred at intervals sensibly longer, and I think it may be fairly stated that the patient was not fully conscious for more than two-thirds of the duration of the pain.

CASE IV.—Mrs C., aged 40, tenth pregnancy, 2 Campbell's Close, Canongate. *8th January* 1870.—Attended case of Dr Somerville's. Head at brim, first position. Os fully dilated. Pains rare and weak. Dr Somerville reported that she was making no progress for some time back. 1.20 A.M.—Gave ext. ergot. liq. ʒi. 1.32.—Head has entered cavity. 1.35.—Gave chloral ʒi. 1.40.—Full, deep respiration, and perfect quietude. 1.45.—Pain apparently less felt. 1.50.—Strong pain. Head on perinæum. 1.55.—Gave chloral ʒi. 2.—Sleeping. 2.8.—It is not very evident that she is under the influence of the medicine. Pains follow close upon each other. 2.15. —Head born, much apparent pain.

Observations.—There was a drunken husband, four children, and constant noise and talking. Impossible to obtain quiet, even long after child was born.

8th Jan., 1 P.M.—Stated that she was conscious throughout. Felt very dizzy after second dose, and wished for sleep. Slept well the remainder of the night, and has done well.

CASE V.—Margaret M'D., aged 18, primipara, 7 Gullan's Close. In labour since 12 P.M., 12th January 1870. Vomiting a good deal. 4 A.M.—Found os dilated; membranes ruptured; head below brim. Pains regular—every three minutes. Rectum loaded. Enema.—6.30.—Pains neither regular nor of any duration. Patient very restless; gave chloral ʒi. 6.40.—Strong pain after quiet sleep. Complains little during pains, and is very quiet during intervals. 7.5.—Head on perinæum. Gave chloral ʒi. 7.10.—Deep sleep. 7.40.—Muttering. Is much agitated. Cannot be kept to any position. Slight delirium. Mother got uneasy; said there was not fair play. Went out, and returned with a midwife. 8 A.M.—By this time the patient was quite quiet. Got rid of the midwife. 8.20.—Child born. Very little exhibition of pain. Cord over shoulder. Child born without much life. Was liberally *spanked.* Well recovered in three minutes. 8 P.M.—Had slept till a little ago. Remembered nothing, but "skelpin' the backside" (*sic*). Has done well.

CASE VI.—Mrs F., aged 34, eighth pregnancy, 6 Foulis Close. *13th January* 1870.—Sent a nurse to the case, and attended it at 10 P.M. Os size of a shilling. Pains very poor; not regular. 11 P.M.—Hardly any progress. Patient has been living on oat-meal, and drinking a great deal of water. Has constant eructations. Ergot ʒi. produced instantly an emetic effect. A quantity of very sour-smelling fluid vomited, producing great relief. Pains not improved. 11.25.—Ergot ʒi. retained. 11.35.—Vomited a little. 11.50.—Good dilatation. Pushed up anterior lip. 12.15 A.M.—Birth of a female child. Another in utero. Membranes entire. Head presenting. 12.25.—I now gave chloral ʒi., trusting to it to get over the second birth unknown to the patient. 12.45.—No progress. Head still at brim. Ruptured membranes, and gave chloral ʒi. 12.52.—Vomited, and continued to vomit frequently. 1.15.—Head at outlet; forehead presenting. The patient was not delivered until 5 A.M. of a female child, dead. I applied forceps in presence of Dr C. Bell, Dr Walker giving chloroform. The patient was quieted for some time by chloral. She was sub-delirious for about half an hour. She slept a good deal.

CASE VII.—Mrs B., aged 19, primipara, 25 College Wynd. Menstruated 5th July 1869. Married 9th July 1869. Fell, going up stairs, 20th January 1870. Woke with pains, 22d January, 8 A.M. At 4 P.M., I found both feet presenting *sacro-posterior.* 4.30.—Right foot near vulva. 4.40.—Gave conjointly ergot ʒi., chloral ʒi. 5.10.—Child born, with exomphalos size of half a large hen's egg; cord 1½ inches broad. Child 6½ months. Appeared dead; after twenty minutes of continued efforts it was resuscitated; it lived thirty hours.

CASE VIII.—Anne A., aged 27, second pregnancy, 14 Cowan's Close. At her first labour five years ago, twins, seventh month; had chloroform in the Infirmary, where she was under treatment.

7th February 1870.—Case of Mr M'Swiney. I attended at 7 P.M. Breech *sacro-anterior*. She was a terribly unruly patient, and howled at the top of her voice during her pains, although they were not prolonged; she never ceased to ask for chloroform. At 8 P.M., the breech being well in the cavity, I gave conjointly ergot and chloral āā ʒi. At 8.4, a prolonged pain, with no exhibition of suffering. At 8.7, making a sort of humming noise. For the next ten minutes, she was in a very excited state, rolling her head from side to side on the pillow, throwing her arms to and fro in cadence, accompanying the motion with an extraordinary guttural noise; inspiration and expiration both sonorous, the first very short, the second very much prolonged; now and again a wild cry at the top of her voice during the pains. Within half an hour from the administration, she was herself, and continued her screams till the birth of the child at 9 P.M. Except whilst she was delirious, she continued to ask for chloroform. The child was at full time; the fœtal heart was getting weak when I gave ergot. The labour was not hastened by it, and I could not find any trace of life when the child was born.

CASE IX.—Janet B., primipara, Royal Maternity Hospital. Patient had been suffering for twelve hours, when I was called to see her at 4 A.M., 15th February 1870. Os just admitting extremity of finger; thin, soft; membranes entire; pains regular and strong. 9 A.M.—Pains are still strong, but recur at rather longer intervals (¼ hour). No change in condition of os. 10 A.M.—As above, patient very weary. 11 A.M.—Chloral ʒss., same dose repeated every half hour. 12 noon.—A double dose. 12.30 P.M.—A single dose. 12.45.—A single dose, ʒiii. in all. Up to this time she had been conscious, even during the intervals of pain, getting off her bed during the pains, talking rationally, feeling sleepy, but unable to sleep. The pains recur every 7 minutes, are sometimes intercurrent, and of long duration. She was ordered to keep to the bed during the pains; and when examined, the os was found still in the same condition. 12.55.—Perfect repose; pulse soft, 88; respirations 18, very easy; pupils normal. She remained for half an hour asleep in a state of the most perfect repose. 1.30.—Believing the anæsthesia to be sufficient, I asked Mr Hinchcliffe, who was present, to examine her; he found the os dilated to size of half-a-crown, and brought away some perfectly fluid blood. Dr Keiller had first arrived, and he examined the patient. Unfortunately the first examination had disturbed the rest, and she was now agitated and complaining, rolling her head on the pillow, and asking for the nurse to support her back. She was, however, but partially conscious. By a singular concurrence of circumstances, a patient in labour with her fourth child was at the same time on the second bed of the Delivery Room, just completing the second stage of a painless labour. This and her former labour (3d and 4th) had been without pain, and the contrast was painfully disadvantageous. 1.55.—Chloral ʒss. 2.10.—Excited, talking much. 2.30.—Quiet and apparently unconscious, notwithstanding the disturbance attending the termination of the other labour, and the squalling of the child. 2.40.—Again awake; eyes open naturally for the first time since nearly two hours. Asked her whether that child was hers. Said she thought she could not have got over it so easily. Asked her again whether it was her child. She felt her abdomen and said, No. I was unable to watch the case longer. The labour terminated at 8.30 P.M. Os remained as above till 5 P.M., when it began to dilate, and second stage was only one hour.

CASE X.—Jessie R., aged 24, second pregnancy, 19 Vennel. Had her first child at the Edinburgh Maternity, three years ago, under chloroform.

18th February 1870.—On the present occasion was in labour since 12 P.M. 4 P.M.—Head low in cavity; membranes entire; pains frequent and strong. Ruptured the membranes. Patient very weary, very excitable, crying for chloroform. 4.10.—Gave chloral ʒi., and told her it was the new way of giving chloroform. 4.20.—Head was advancing, and anæsthesia not marked; gave chloral ʒi. She almost immediately ceased to manifest any excitement; remained quite quiet, and complained no more, not even when the head passed out at 4.40. Twenty-five minutes later, the placenta being still retained in utero, I introduced the hand, and found a portion of it grasped tightly at the left superior angle; withdrawing it, I failed to remove a portion of membranes, and re-introduced the hand, which had to contend with the same cause of retention. Patient perfectly unconscious. About forty minutes after the birth of the child, she began to speak from time to time, and soon opened her eyes. The noise of the child crying prevented her settling down to rest; but she was ignorant of the birth of the infant, and frequently asked "whether she was better—whether she would soon be better." She never inquired whether that child was hers. I had put the binder on over the naked abdomen, and she several times declared that somebody must have carried away her shift.

She now began to talk of her mother, who died last August, as if alive, and wondered when she would come. Now and then she slept for a minute or two, and then began again to rave; she talked rapidly, and often changed her subject. She said the doctor had tried to persuade her that was the new way of taking chloroform. "The doctor cheated me—I am sleeping, but I don't know myself—I wish I could sleep; I am very tired" (with her eyes shut). "I have tasted that stuff, I wonder what it was—I don't know, but it was not chloroform." Repeated often, "Am I better?" 5.25.—Began to remember that her mother was dead, but on Dr Niven coming in, asked when her mother would be back. Left her at 5.45. 8 P.M.—Found her asleep, and was told she had been talking a great deal of nonsense.

19*th Feb.*, 10 A.M.—Did not sleep well on account of a cough she had had some time past, otherwise quite well. Remembers the birth of the child—does not remember the removal of the after-birth. Says that the new chloroform is longer putting you over, but that there is not the painful whirring sensation in the head.

CASE XI.—Mrs X., aged 23; primipara; in good health, but much troubled with nervous irritability during her pregnancy. Her dread of pain exceeds any powers of description. Her labour began just after midnight, 9th April. When she could no longer doubt that she was in labour, her excitement and irritability became great. Chloral was administered in ℥ss. doses every half-hour from 1.30 to 2.30 A.M. The effect was manifest by the time the second dose was taken, but it seemed desirable to continue the administration, in order to remove some remaining indications of restlessness. From this time, 2.30, to 8 A.M., the pains continued regular and strong; the patient quiet, and perfectly unconscious. An examination made at 6 A.M. showed the os fully dilated, and everything normal. The bladder was emptied with the catheter. At 8, contractions began to flag, and before 10 I wrote to Dr Keiller, advising him of the state of the case. He was in attendance immediately, and examined the patient. Condition of perfect quiet; pupils rather large, but perfectly contractile. No signs of suffering on the part of mother or child. Dr Keiller decided to wait. Labour made no advance. The head remained as above, in good position, but in the middle of the cavity. Towards 2 P.M. the patient became restless, and would not lie long in any position, rolled the head from side to side frequently; no speech. At 3 P.M., Dr Keiller delivered with forceps a male child, which was with difficulty resuscitated, and which remained for twenty-four hours very weakly. Chloroform was administered at the last stage of labour, and its effect was, on the one hand, to quiet the restless agitation, and, on the other, to restore speech, and with this singular result, that the mental preoccupation, which one would have supposed effaced, was revealed as intense as ever; the few words she spoke having reference to her one extravagant preoccupation—her labour. The placenta was expelled naturally within ten minutes. She took food that evening, and slept soundly till next morning, feeling perfectly well, but *hurt*—so that here again her nervousness intervened to retard her recovery; for some slight pain about the parts, when attempting to pass water, alarmed her, and she maintained a voluntary paralysis of the bladder for three weeks, and was only cured of it by the exercise of moral severity. The passage of the catheter left behind much irritation of the bladder. The convalescence was interrupted by an attack of fever—thirty-six hours' duration—on the twelfth day. She gave up nursing five weeks after her confinement; but improper management of the child, from the twelfth to the fifteenth day, must be considered the chief determining cause of this change.

When we are considering the application of chloral to the suppression of pain during labour, the point of primary importance is to determine the influence of the agent on the uterine contractions.

Before proceeding further, I will reserve Cases I., IV., VI., VII., VIII., XI., for future discussion, and confine my remarks for the moment to Cases II., III., V., IX., X., which formed the groundwork of my experimentation.

In Cases II., V., X., the second stage of labour was well advanced, and anæsthesia was as complete as could be desired. Cases III., IX., are severally good types of the two classes of patients we meet with in practice under circumstances of protracted suffering, more especially, as in both these instances, during a tedious first stage. When labour has been protracted until we observe marked distress on the part of the patient, the prominent symptoms are either unnatural excitement or great depression; the pains are irregular, often intercurrent, the intervals not distinctly marked; and who has not heard the patient imploring "a wee sleep?"

In the condition of extreme torture, observed in Case III., the effect of chloral is strikingly exhibited in the case as recorded.

The power of the medicine in diminishing pain was well instanced in this case, when the uterine contractions, tested by the hand on the abdomen, began fifteen or twenty minutes before the patient exhibited any consciousness of pain, which consciousness was again lost before the contraction had expended itself. Intercurrent pains disappeared entirely, and the uterus contracted with a perfectly regular periodicity in periods of longer duration than formerly. Intensity and duration cannot but be a test of efficiency, and my conviction was that the contractions were more efficient. Pain was not superseded, because my experience was not sufficient to allow the exhibition of fuller doses; but in a like case, with much marked reflex excitability, I should like to try conjointly with chloral a very moderate exhibition of chloroform. I should prefer this to increasing the dose of chloral.

The class of patients in whom depression is observed is well exemplified in Case IX. The effect was so marked that the phenomena of labour might have been thought to be suspended. Perfectly painless contractions recurred at very regular intervals, and so effective were they that, in the short space of half an hour, the os dilated more than during the preceding wearisome eight hours. Dilatation was so rapid that the structure bled. Acting upon the conclusions drawn from the observations I could command, I secured to a patient, whose nervousness exceeds anything I ever observed, a perfectly painless labour in Case XI.

I now return to the six Cases I reserved—I., IV., VI., VII., VIII., XI.

CASE I. is an instance of idiosyncrasy—absolute intolerance of the medicine. The results obtained in the four remaining cases are not less interesting that they are negative. In all, ergot was administered conjointly with chloral; and although I confess that the experiments are far too feeble to establish a point of such paramount interest, still I cannot but draw your attention to a subject which observation will readily decide. Is chloral antagonistic to ergot? If so, the therapeutic importance of the fact would hardly outweigh its physiological interest. Dr Liebreich, who introduced chloral to the profession, followed up his researches by the discovery of its antagonism to strychnine; and if my inference is correct, we shall have the two great tetanizing agents, each in its distinct sphere, affecting a like antagonism to chloral.[1]

I hope I may now be permitted to make a few observations on each case, *seriatim*, in order to point the interest of each.

CASE I.—Intolerance of medicine.

CASE II.—A very quiet nature of woman, devoid of excitability. Result very favourable. The peculiarity of this case, the first we witnessed, was that the patient several times, during the apparent condition of unconsciousness, answered questions pertinently; in fact, woke out of her sleep to answer them, and fell off at once again. More—she appeared conscious of some pains, and especially of the birth of the head; but the memory of the whole circumstances was effaced when she woke five hours later, and it remained so.

CASE III.—A strong, powerful, muscular woman, who came up from the country twelve hours after her labour began, and wandered for a long time in Edinburgh, not knowing where to go. The case has received sufficient comment in another place.[2]

CASE IV.—Ergot administered before chloral, negative result; other causes tending to negative the hypnotic influence will be referred to further on.

CASE V.—A very remarkable case, quite the parallel of Case II., but complicated with slight cerebral disturbance. Dose too powerful. The girl owed her recollection of the termination of labour to the incident of the commotion produced around her bed by the resuscitation of the infant.

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[1] The physiology of this statement is obviously incorrect; the observations are probably defective.—ED. *Edin. Med. Journal.*

[2] See *ante*, p. 115.

Case VI.—Chloral would not have been adminstered if I could have foreseen the course of labour. This case will be referred to again.

Case VII.—Ergot administered conjointly with chloral. This case especially suggests antagonism.

Case VIII.—Marked cerebral disturbance for a short period. This case will also be the subject of critical remarks.

Case IX.—Perfect anæsthesia for the space of half an hour, interrupted by a vaginal examination.

Case X.—Very favourable result marred by the occurrence of sub-delirium, more than half an hour after delivery. Hand introduced into uterus, and placenta extracted without any resistance on the part of the patient.

Case XI.—Painless labour throughout. Was chloral the cause of the cessation of labour-pains, of uterine contraction? They had continued very efficient for four hours, and the os was fully dilated. They continued two hours more without producing any effect on the head. Is it just to incriminate chloral when we want any correlative proof that it has any tendency to affect injuriously uterine contraction? Before offering any conclusions, I have to add a few remarks on the administration of chloral, presuming that their importance is only secondary in place and not in degree. Sir James Simpson insisted strongly on the influence of external impressions upon the character of the anæsthesia under chloroform, and his rules should be more stringently enforced in the exhibition of an anæsthesia of less potency. What we aim at with any medicine is the attainment of a desired end, with the use of the smallest possible quantity. This is especially urgent with a remedy administered by the mouth. Chloral, too, has a very complex action; capable of suppressing reflex action and also consciousness, it seems, *when given in excess*, occasionally to exercise a stimulant action on the cerebro-spinal system, producing disagreeable effects, not compatible with its introduction to private practice; effects, however, be it said, transient and never dangerous.

On this account it is imperative that the patient be surrounded by conditions tending to perfect repose of mind and body; and when there has been great previous excitement, we must proceed very cautiously. For the attainment of so delicate a result as anæsthesia—"Thus far and no farther"—great care is required, and we must do with chloral as we do with chloroform, administer it tentatively by fractional doses. I have sat for two hours by a pregnant patient brought into the Maternity in the middle of the night, in consequence of severe vomiting; and I have given chloral in successive small doses, watching the case until I knew that perfect rest had been induced; and the next morning, after sound sleep, the cure was perfect. The first successful case I saw treated by

Sir James Simpson (Case II.) was a type of good practice, but it was favoured, as no other case has been since, by the general condition under which it occurred—" a quiet nature of woman," I have said, " devoid of excitability—a private patient in the hospital, not surrounded by half-a-dozen tattling drones, or curious mutes. Perfect quiet; night time. Case VIII. offers an exact counterpart of this; the conditions there were most unfavourable for the trial.

It is only when one has observed that one knows the counteracting influence of small things; and though I sincerely believe that the future of painless labour will not rest with chloral, but that science will discover other remedies more applicable still, I am at present only engaged in the chloral experiment, and it is my duty to insist upon the conditions of experimentation. Those who, with an honest conviction, say, I have never seen such effects, must show henceforth that they have fairly experimented.

In the homes of our Scotch labouring classes, the chamber of a parturient woman is the resort of all the gossips who can gain admittance; whilst the absence of almost every comfort is rarely pushed to the extreme limit of abstinence from stimulants. I made mistakes when I began to experiment, and this warning, if necessary, will prevent their repetition. Cases IV. and VI. were especially refractory, from causes above mentioned. The production of anæsthesia is favoured by all that lulls the senses. I have failed at the Maternity to quiet a wilfully noisy, garrulous patient, even with chloroform, given for nearly an hour to the extent which is permissible in parturition. Chloral given in massive doses to an excited patient, whilst it stupefies consciousness, intensifies reflex irritability,—Case VIII.;—or where it quiets reflex action, may awake unconscious cerebral activity,—Case X. Persons present at the administration of anæsthetics in midwifery should therefore be competent to understand suggestions or obey instructions.

Noise must be suppressed; no talking on the part of the patient encouraged; her movements controlled without violence. Examinations and any operative interference should be avoided.

When anæsthesia has been complete and prolonged for some hours, the bladder must be emptied; and it would be advisable, when using the catheter or making a vaginal examination, to avoid the induction of reflex action by giving a few whiffs of chloroform.

In conclusion, I appeal to your indulgence against the possible enthusiasm which has extended this communication beyond reasonable limits.

Conclusions.

1. Chloral is an agent of great value in the relief of pain during parturition.
2. It may be administered under favourable circumstances during and at the close of the second stage, with the result of producing

absolute unconsciousness in the same sense in which we understand unconsciousness under chloroform.

3. When thus given successfully, it has this advantage over chloroform, that it requires no interference with the patient.

4. It is desirable to retain chloroform in the position which it at present occupies in midwifery, and to reserve for the agency of chloral the first stage of labour. If, however, chloral or some agent having analogous properties is found successfully to relieve the pain of uterine contraction, the use of chloroform will be restricted to a lesser period of the duration of labour, or to the facilitation of manual or instrumental interference.

5. It is demonstrated that a labour can be conducted from its commencement to its termination, without any consciousness on the part of the patient, under the sole influence of chloral.

6. The exhibition of chloral in nowise interferes with the exhibition of chloroform.

7. The proper mode of exhibiting chloral is in fractional doses of grs. xv. every quarter of an hour until some effect is produced; and according to the nature of that effect the further administration is to be regulated. Some patients will require doses of ʒi.; and it is better to produce an anæsthetic effect by ʒiii. given in the space of two hours than by ʒi. given singly.

8. The effects of chloral are continued beyond the period of completed parturition, and the repose experienced by the patient after her labour is one of the favourable circumstances to be noted in considering its application to childbirth.

9. Any stimulating effects, in the form of general excitability, occasionally observed during the administration, have passed away very rapidly.

10. Chloral not only does not suspend, but rather promotes uterine contraction by suspending all reflex actions which tend to counteract the incitability of the centres of organic motion.

11. Labours under chloral will probably be found to be of shorter duration than when natural, for unconscious contractions appear to have more potent effects than those which are accompanied by sensation of pain.

12. Experiments are required in order to determine whether there exists the same antagonism between ergot and chloral as is known to exist between strychnia and chloral.

13. The general conditions under which chloral is to be administered are the same as those which regulate the administration of chloroform, and the rules laid down by Sir James Simpson in connexion with this subject must be rigidly adhered to.

ARTICLE V.—*On Tetany.* By JOHN HADDON, M.A., M.D., Eccles, Manchester.

CASE I.—Mrs W., aged 24, was confined on 4th October 1869. The labour was of short duration, and there was no flooding. On the morning of the eighth day she was frightened by a stranger entering the house at an untimely hour. She had a few delusions, and was much excited; but after a sleep she awoke perfectly rational, and made a good recovery.

25th March 1870.—She states that she has menstruated profusely every fortnight since January. She is of a highly nervous temperament, has at times a good deal to vex her, and is nursing a strong child. The bowels have been rather confined for some time; menstruation ceased only two days ago. Three weeks since she had severe pains, radiating from the epigastric region over the abdomen. They then seemed to settle in the hypogastric region, and soon she felt a peculiar contraction of her fingers and toes, and a twitching about the eyes. It was slight, and she did not heed it much; but it has continued to trouble her a little ever since, especially on getting up in the morning. She says she has felt very peculiar, and cannot describe her feelings. On the afternoon of 25th March she became worse, experiencing severe pain in the teeth and limbs, and feeling as if something was being drawn to a point over the epigastric region. There was also a general twitching over the body, and the fingers were contracted.

I saw her about seven in the evening. There was a twitching about the eyes, and the lips were so drawn together that speaking was difficult. The fingers were approximated and the thumbs incurved, giving to the hands a conical shape. The toes also were incurved. She could not sit still, and had altogether a strange appearance. She could not by an effort of the will open the hand. I could easily straighten the fingers and thumbs, but doing so gave her pain. Her intellect was quite clear, and her pulse was natural.

I prescribed half-drachm doses of the bromide of potassium every hour. The symptoms began to abate, and after the fourth dose they entirely ceased.

Next day she was a little stiff, but otherwise felt quite well.

Such a combination of symptoms was quite new to me. I was reading Trousseau's Lectures at the time, and the day after I had seen that case I came to what he calls "Tetany," and was much pleased to find an excellent account of the symptoms I had witnessed.

About ten days after seeing Case I., I met with another. I saw her on 4th April.

CASE II.—Mrs B., aged 28, is of a dark complexion, with a well-marked dark areola round the eyes. She has been deaf for several years, and is subject to a severe headache. On two or three occasions she has fallen down unconscious, and remained so for some hours. On recovering from such attacks, she has severe headache, a slow pulse, and a temperature very little over the normal. She was confined on 20th February 1870, had an easy labour, and convalesced well. She is nursing her child. The bowels have been regular. She has had no menorrhagia, but feels weak and unable for much exertion. She says that she has been troubled for some weeks with a twitching about the eyes, mouth, and thighs. The fingers and thumbs are occasionally so incurved that she cannot use the hands. She has noticed that the twitching is worst when she sits quietly, and seems to diminish when she walks about.

I prescribed half-drachm doses of the bromide of potassium thrice daily, and in a day or two she was free from all the disagreeable symptoms.

Having seen these two cases and read Trousseau's observations, I remembered having met with another case very similar, the facts of which I give from my note-book.

CASE III.—Mrs M., aged 40, is very stout, and has aborted several times during the past three years. The last abortion occurred in June 1869. She has been confined in a great measure to bed for some time with a large umbilical hernia, which had become ulcerated in several places. Menstruation has been regular, and the bowels have been natural.

I was called on 27th January 1870, when she gave me the following particulars:—Early that morning she had severe pain down the back, with cramp and twitchings in the legs. Menstruation then began profusely, and these symptoms disappeared. At 2 P.M., after dinner, she began to feel pains, cramps, and then twitchings in the legs. The twitchings having extended to the arms and face, she became alarmed, and went to the mirror to see what her face was like. Its appearance frightened her so that she dare not go to bed again. She says her face was drawn to one side, and she could not use her hands properly, on account of the contraction of her fingers, and a feeling of what she called numbness in the arms.

When I saw her she was walking about in a state of great excitement. There was a twitching about the muscles of the face, and the lips were drawn close together, so that she could hardly speak. Her whole expression was changed. I did not notice the hands, but she had not proper use in them; and the arms were numb. Her intellect was quite clear. The pulse was 112, and the temperature 98·6°.

I prescribed half-drachm doses of the bromide of potassium every hour. Menstruation continued, and the twitching and other symptoms soon ceased.

According to Trousseau, Dance was the first to publish an essay on this affection, in 1831. He called it "Intermittent Tetanus." In 1844, Dr Imbert Gourbeyre talked of it as "Contractions of the Extremities;" and in 1852, Dr Lucien Corvisart proposed for it the name of "Tetany."

Though it has been well observed and described in France, I do not think it is well known in this country, and I record these cases in the hope that attention may be directed to this disease, which is all the more interesting from the obscurity that hangs around it. Its cause or causes are yet undetermined; its pathological anatomy is unknown; and its treatment has been varied. Menstruation, the puerperal state, pregnancy, diarrhœa, and cold, are mentioned as probable causes.

The treatment by bromide of potassium was adopted from a knowledge of its power over a variety of nervous affections, to which I regarded those described as in some way allied. The contractions abated after its administration. Nursing was prohibited, and a course of tonic treatment instituted, with the view of improving the general health.

ARTICLE VI.—*Notes of a Visit to some Houses at Balfron, licensed for the Reception of a certain Class of the Insane.* By R. H. B. WICKHAM, Royal Edinburgh Asylum.

THERE is no subject of more importance to the ratepayer than what is to be done with our insane poor. Whether insanity itself be on the increase or not, it is hard to say at present; but there can be no question that the number of those for whom inspectors of poor have to provide accommodation is annually so, and in all probability will be so for some time to come; for as civilisation advances, the helpless and repulsive condition of the village "natural" is more and more apparent, and the people look with increasing complacency every year on his being transferred from the dirt and degradation of the gutter to the warm and comfortable wards of the District Asylum. Nor is this the only source from which the increase arises. A great number of the insane poor are paupers only because they are insane; they belong to a class, the members of which, when in good health, are able and proud to provide for themselves; but whereas, when afflicted with bodily diseases they go to the infirmaries, and subsist on charity, when labouring under insanity they are obliged to go on the parish, and so help to crowd the County Asylums. There are other causes also at work, which, however, it is not the purpose of this paper to describe. But from one cause and another, almost every public asylum in the country is overcrowded, while the only suggestions for the cure are extensions of building, and placing harmless lunatics to board in private houses in the country.

From the necessity to provide accommodation as cheaply as possible for the insane poor has, in a great measure, arisen the system of boarding lunatics in small numbers, or singly, in private licensed houses. This system has many advocates, while, again, it is looked upon with distrust by men of very extended experience. To offer a few remarks on the subject is the purpose of this paper.

A short time ago, by the kindness of Sir James Coxe, I was permitted to accompany Dr Mitchell and Dr Paterson in their official visit to the village and neigbourhood of Balfron, where are lodged about fifteen lunatics, chiefly of the female sex. By this means I was enabled to see everything that was to be seen, and I was requested to put such questions, and make such examinations of the patients, their attendants, and their habitations, as I thought proper.

The houses in which the patients were lodged were of the ordinary village build, consisting some of one floor and some of two. The term "cottage," as applied to them, is, I cannot help thinking, a misnomer, and one calculated to mislead very much. These were, as I say, simple village habitations of one or two floors, with whitewashed walls, thatched roofs, generally stone floors, and two or more rooms. The first which we saw was one in which there were two female patients, both evidently labouring under imbecility. The condition of the patients and their surroundings, animate and inanimate, was very satisfactory, much attention being evidently paid to cleanliness by their guardian. This personage was an elderly woman, who, with her daughter, lived with these patients. They seemed to be very happy; their clothing was good, and their bedding clean and apparently sufficient, while there was no appearance of their being ill fed. The guardian, too, was not dependent on any profit to be derived from their keep; and as they appeared to be quite at home, it may be presumed that they are as well fed as she is herself. So far, then, as regards the mere comfort of the patients, nothing seems to be wanting; but it struck me that at least one of them might be turned to better account in an asylum. From all I could learn, the little work she did was confined to the washing of potatoes for the day's dinner. I think both, though they could not apparently be better cared for, would be more useful in an asylum than they are at present; of one case, I have no doubt at all.

The second house which we saw contained two female patients, and here the condition of things was reversed, and the state of the lunatics and their attendants was not satisfactory. One patient was in bed suffering from bodily ailments. The bedroom had an unclean appearance. But the condition of the patient who was up was not good; she had dirty ears—not dirt acquired in the course of the morning, but evidently the result of neglect. She had also some suspicious-looking scratches about her neck, of the origin of which she gave a contradictory and confused account, while the guardian gave, with ill-concealed anxiety, her version of it. The house, too, was dirty. Dr Mitchell told me that the Board of Lunacy was not satisfied with this place, and had had under consideration for some time the propriety of withdrawing the license.

In the next house, which contained three female patients, the condition of things was again reversed, and the appearance of the patients and their surroundings was eminently satisfactory. Tidiness in this house, as in the first one we saw, seemed to be natural to the woman in charge, and consequently the patients were in that respect everything that could be desired. They are bathed every Saturday night in their own sleeping-room, and a fire is stated to be lighted for the purpose in winter. So far, then, as cleanliness and care are concerned, there was apparently nothing wanting in this house; but whether the patients ought to have been there at all is, I think, quite another question. Of the three, two were cases which, however they may have been suitable when sent there, should be now in an asylum. The one was an old woman, who would be better cared for there than she can be were she is, kind as her guardian seemed to be. The other was a stout woman, of a somewhat excitable nature, and easily irritated; just the case which, apart from the grounds of public safety, is suited for asylum treatment. There is no better worker in the galleries of an asylum than an ill-tempered woman, and even amongst responsible beings a cross woman generally makes the most active servant. It is to be doubted, in the case of this patient, if the younger part of the population of Balfron treat her outbursts of irritation from the same philosophical point of view from which her guardian seemed disposed to look at them. She is extremely liable to be exposed to the tricks of young boys and girls; and such proceedings, while very cruel and detrimental to the lunatic, are also very degrading to the sane.

The next case was not a pauper, and resided with her father, who was himself scarcely the man I should be disposed to engage as an attendant on the insane. The lunatic did not present the appearance of one who was treated from an enlightened point of view, being untidy and dirty. Altogether the house, lunatic, and guardian, were most unfavourable specimens of the special licensed-house system.

In the next house we found a male lunatic, afflicted with partial paralysis of the lower extremities. He was lodged at the top of a stair, which, although it may have been as good as any other in the village, was of the breakneck order, and certainly would never have passed muster in an asylum. It was very steep and narrow, and had a rope to assist one in descending—a contrivance much required, for I felt some uncertainty myself when going down. The guardian, a very tidy-looking woman, told me that her patient went up and down by himself whenever he thought proper. He did not, however, offer to perform the feat during my visit; and I was glad to take the woman's word for it, as I should have held myself guilty, as accessory before the fact, had he come to grief. But if he had been sound of wind and limb, there would have been little reason to complain of his apparent condition. He appeared to be well cared for, and was clean and tidy at the time of our visit. The guardian told me, however, that he was of dirty habits, and that she frequently found him much soiled in the morning. I think it open to doubt, therefore, that he is in a proper place when boarded in one of these houses; as he would in an asylum enjoy the services of the night watch to raise him at proper times, of which attention he is, by his guardian's own showing, in much need.

The last house which I shall describe was one in which an epileptic idiot child was boarded. Dr Mitchell told me that he had improved very much since he had been brought from home; naturally of filthy and repulsive habits, he had been trained sufficiently to show a little regard for decency. The guardian seemed to be as kind as a mother to him, and indeed he would be a monster who could look with other than pitying eyes on a child so stricken as this poor boy. But I do not think that he is a proper object to be at large. His state is distressing in the last degree, and cannot but be degrading to those living with him.

I have thus endeavoured to give an impartial account of my visit to Balfron. I saw other lunatics than these which I have mentioned, but their condition was much the same as the others, and it would be but repetition to describe them in detail. The impressions I received from the inspection were these:—*First*, that there are good and bad mixed up together in the system—a state of affairs common indeed to most things by the wit of man devised; and, *secondly*, that while under other conditions it is possible by due care to keep down the bad, under these, from the want of sufficient supervision, and considering the class from which the guardians are drawn, a great deal of the good must be taken on trust. The best asylum attendants require to be looked after, and the guardians at Balfron certainly gave no appearance of a special claim to exception from this rule.

One thing which I missed very much was a proper discipline. The Utopian dreams of some writers of leading articles for the family circle, of the day when the lunatic shall be permitted freedom of action, will never, I hope, be realized; for it would be as rational to allow children to roam about unattended and of their own free will, as to permit lunatics to do so. A certain quantity of discipline is as necessary with the one class as with the other, and to abandon it is to deteriorate the condition of the insane.

The absence of discipline is not so easily replaced by something else as might be supposed; for though the cases we have been considering were all those of dementia, idiocy, and imbecility, yet it should not be forgotten that much may be done even with these, if not to cure them, at any rate to very much improve their condition and habits. The Annual Reports of Asylums continually show cases of recovery cropping up, after what might have been considered hopeless dementia had set in. The discipline, regularity, and the good food, and means of employment and amusement in well-ordered asylums, all gradually tend to recovery; and, in some instances, after the lapse of ten and even fifteen years, isolated cases are discharged as responsible beings. And even with regard to idiots, institutions for the treatment of these cases turn out what may be termed an immense percentage of patients able, under supervision, to do something for themselves. But what treatment of this kind do those under the special licensed-house system receive? They are under the care of people who, kind as they may be, cannot be said to have any enlightened views of the treatment of insanity; and in the want of sufficient supervision, as I said before, they are not likely to learn any. This is a faulty state of matters. Even the most hopeless-looking cases should be regarded from two points of view, not only as objects which should excite our pity and compassion, and make us do the best we can for them, but also as beings whose organization, however low, is still capable of improvement. To place these in circumstances where the latter condition cannot be attended to involves a serious and grave responsibility.

Dr Tuke, in an excellent paper on this subject, advises that these special licensed houses should be in charge of the medical superintendent of the asylum of the district, who should have as much control over them as he has over the asylum. If the special licensed houses are to be continued, this is a valuable suggestion; but before the system itself can be made a good one, it must undergo many changes, and be in several of its features remodelled. The plan of boarding out these patients in villages amongst people with tastes little superior to their own must be degrading, and the freedom with which they are allowed to commingle is very apt to be abused.

The great evil at the root of the system, however, is the want of sufficient supervision. It is a favourite argument with some that cases such as I have described stand no more in need of daily medical visits than cases of chronic rheumatism, and that to engage a medical man to devote his whole time to them is a waste of the public money. Now, setting out of sight the fact that the want of supervision is as apparent with regard to the guardians as the lunatics, to such an argument it may be answered, *first*, that in the eye of the law all lunatics are alike, and require the same machinery to take care of them; and, *secondly*, that if Dr Tuke's plan were adopted, or something like it, the medical superintendent of the District Asylum could, at very little extra expense, devote his time to them. To effect this it would be necessary to aggregate them much more than is at present done. It would be practically absurd to make one doctor responsible for thirty or forty lunatics, scattered over an area of as many miles; and the aggregation of them would have another beneficial effect, which I shall consider presently.

Another proposal to cheapen the cost of the insane poor is to build inexpensive asylums for incurables, and to keep the present ones, with all their modern improvements, for curable cases. This proposal is not without its supporters, but men of great experience and entire familiarity with the subject denounce it in the strongest terms. The adoption of such a proposal would be, I think, to undo all that has been done, and, more important, would be detrimental alike to the curable and the incurable cases. Among the incurables we have a class who are of the greatest use as the agents by which recoveries are effected. They are those who incite the new cases to labour, and gradually to return to orderly and decent habits. They are as much concerned, in their own way, in the prosperity of their particular asylums as the superintendent himself. From their long residence in the house they are, as they are entitled to be, consulted in many little details, both of the general management of the establishment and of the treatment proper to be pursued in certain cases, and to lose them would be to lose invaluable assistants. While they are thus aiding the physician they are also receiving much good themselves. Their self-respect is raised, and they by degrees forget that they are confined at all, some to such an extent as to refuse their liberty when ill-advised friends would take them out. I cannot but think, therefore, that it would be a grievous error to try such a method of lessening the cost of lunacy; while I doubt very much if the saving to be thus effected would not be more than counterbalanced by the additional outlay incurred by the curable institutions in supplying the place of the aids which they would thus lose, and which serve them at present for the mere cost of maintenance.

A serious want has long been experienced by many asylum superintendents, which the special licensed-house system might be made to supply. In all asylums there are a few cases of that dementia which may be best described as a water-logging of the intellectual functions. If these cases could be removed from the asylum, and placed in other places under judicious watching, the change would be very beneficial. But with the pauper and indigent classes it is most difficult so to deal. A superintendent must either retain such patients in his asylum, where he may be painfully conscious that they are doing no good; or he must commit them to the charge of relatives, who have no time, and sometimes, it is to be feared, but little inclination, to attend to them. Of the two evils it can hardly be wondered that he should choose the asylum. But if the special license system were made to afford convalescent hospitals, as it were, great good would be done. To do this it would be necessary to place these houses under constant medical supervision, because the cases which would be placed in them would be in a critical and anxious state, and it would also be necessary to have experienced nurses for them. I am emboldened to make this proposal by the success which I have seen to attend cases amongst the richer classes which have been treated in this way, and I should have no hesitation in trying it freely had I the means of doing so. It would have little effect on the percentage of recoveries in asylums, because there is but a poor chance of such cases recovering in them, and that difficulty might be got over by attaching these convalescent houses to the asylum of the district. In England, I understand, when a lunatic is Liberated on Probation he is still under the charge of the superintendent of the asylum, which is paid for his maintenance as if he were an inmate. I do not think it would be of any benefit to change the Probation system as it exists in Scotland, which is the opposite of the English one; but such a plan might be extended to convalescent houses with, I think, good results. The cases which are amenable to such treatment are few in number, and would not cause any revolution in the working of the Scottish Lunacy Acts.

This would do away with the special licensed-house system altogether, as regards the purposes for which it was originally designed. It is still a question for discussion whether large asylums are an unmixed evil. I do not intend at present to enter on this question, and will reserve it for a future occasion. But something must be done with the insane poor, and the more economically it is done, with due regard to efficiency, the better. In Scotland, in asylums, the present average cost per head per annum is from £24 to £25; and when it is considered that a large majority of the cases are chronic, it seems a great price to pay. For my own part, I believe that the true way, in the interests of the insane themselves, and the really economical way to cheapen the cost, is to make asylums as self-supporting as we can. This will not be done, I humbly conceive, by extending the present system of special licensed houses, because the cases which are the most valuable in the asylum are those which would be removed. Besides, with the general class of guardians who are intrusted with their care, its tendency is to deteriorate their condition. If any one wishes to convince himself to what depths it is possible to sink, let him compare the condition of the insane in asylums with those in private dwellings, as reported by the Royal Commission of 1855. From page 37 to page 103 of the Appendix to their Report, published in 1857, the state of those in asylums is commented on, and is worthy of a comparison with from page 244 to page 272 of the same book. From my own experience of the matter, I am sure that the more numerous a working party of insane is, if it be not unmanageably large, the more work is to be got out of the individual members. The spirit of rivalry is then awakened in the better-developed brains, and that of imitation in those more poorly furnished. To isolate these cases is to strike at the roots of any scheme for getting profitable labour out of them. With no spur to incite them to work, they speedily degenerate, and, becoming too troublesome for private houses, they are sent back to the asylums, where, having forgotten what they once knew, they establish themselves as profitless deadweights. This is not in the true spirit of economy. The subject of utilizing the insane, and of thus relieving the public of a portion of the expense of maintenance, requires much more ventilation than it has hitherto received. It is a grave and important question, and demands the serious consideration of experienced men of all classes, for it concerns not only the purse of the ratepayer, but also the welfare and happiness of those afflicted with the most terrible calamity that can happen to man.

ARTICLE VII.—*On the Action of the Cobra Poison.* By J. FAYRER, M.D., F.R.S.E., C.S.I.; Surgeon, Bengal Army; Professor of Surgery in the Medical College of Bengal.

(*Continued from page 58.*)

TWENTY-THIRD SERIES.

Present—Drs Fayrer and Cunningham, and Mr Sceva.—
11th September 1869.

EXPERIMENT No. 1.—Some poison was taken from a cobra (*teturiah keauteah*), and about a drop inserted between the eyelids of a pariah dog at 2.58 P.M.

3 P.M.—The eye is already much irritated; lachrymation profuse. The dog keeps rubbing it with his paw, and resting the side of the head against the wall; he is very restless and uneasy; chemosis rapidly increasing. 3.5.—Lying down; rubbing the eye, which is much chemosed; whining and restless. 3.16.—Dog very restless; lies with his head resting against the wall. 3.28.—Eye intensely swollen; the animal is very restless, and whines. 3.35.—He is evidently under the influence of the poison; breathing deeply. 4.4.—Lying quiet; breathing very deep. 4.11.—Lies curled up. 4.16.—Gets up; is quite intelligent; is very weak, and cannot stand long; the eye is intensely swollen, with a pale chemosis. 5.15 P.M.—On being roused from a lethargic state, appears stupid and confused; eye intensely swollen; lies down again and sleeps soundly. 5.31.—Breathing slowly and heavily. 6 P.M.—Sleeping comfortably. 9.30.—Walks without difficulty; looks more natural; rubs the swollen eye with his fore-paw. The constitutional effects of the poison are evidently passing off.

12*th September*, 3 A.M.—Sleeping comfortably; breathing natural. 8 A.M.—Swelling of eyelids diminishing; appears lively. 5 P.M.—Still improving. 13*th*.—Improving; opens the eyelids; the cornea is quite opaque, and there is a muco-purulent discharge from the eye. 14*th*.—The dog is recovering. 15*th*.—Except that the cornea is opaque, and some conjunctivitis remains, the dog is well; he is cheerful; takes his food well.

It was evident in this case that the dog was poisoned by absorption from the conjunctiva. The constitutional effects were not severe as in the former dog, but the local mischief was very serious, and for a time, at all events, have destroyed the sight of that eye. The intense chemosis, no doubt, caused the corneal mischief. The results of these experiments show how careful we should be to protect the eyes when handling and approaching the cobra or viper in an excited state, when it is possible that some of the poison, scattered as the snake attempts to strike, might accidentally be injected into the eye. In another experiment, a very minute portion of the poison was thus thrown into the eye of one of the gentlemen assisting in the experiments. The poison had been applied to a dog's nostril, and in the sneeze that resulted the accident happened. The eye was immediately washed and fomented, care being taken not to rub it, and no evil result, beyond lachrymation, irritation, and transitory redness, followed.

EXPERIMENT No. 2.—Some poison was taken from a spectacled cobra (*gokurrah*), and a drop or two inserted into a pariah dog's nostril at 3 P.M. Violent sneezing and profuse watery discharge from the nostril resulted almost immediately.

3.30.—The sneezing and watery discharge continue, and seem to irritate the dog considerably. 3.45.—No constitutional effects of the poison manifested, but the local symptoms continue unabated. Two drops more of the same poison were well rubbed into the palate. 4.15.—No change. Two more drops rubbed into the mucous surface of the cheek. 4.25.—Not affected. The last applications appear to have caused no irritation. 5 P.M.—No change. *12th September*, 3 A.M.—Does not appear to be affected in any way by the poison. The catarrhal symptoms have passed away. *13th.*—The dog is well.

In this case, beyond the local irritation, no effect was produced.

EXPERIMENT No. 3.—A drop of cobra poison was inserted into a fowl's eye at 3.15 P.M.

3.18.—Eye already much swollen; membrana nictitans deeply chemosed. 3.30.—Eyelids quite closed; no constitutional sign of poisoning. 3.37.—No change. 4.10.—Another drop inserted into the same eye. Much irritation immediately followed; the fowl is constantly trying to scratch the eyelid with its foot. 4.20.—Beginning to droop; nodding its head; sleeping as fowls do when they begin to feel the influence of the poison. 4.30.—Head more drooping. 5.—No further change; no worse. 5.30.—Eyelids greatly swollen, but no appearance of any constitutional action of the poison. 9 P.M.—The same. The fowl continued to improve. The eyelids and conjunctiva became less swollen, and gradually recovered; and on the 16th, the bird was perfectly well, and its eye quite right again.

In this case also, as in that of the dog, the local symptoms were very severe, whilst the constitutional symptoms were mild and transient. They equally showed that the poison can be absorbed through the unbroken surface of a membrane, and that the conjunctiva especially is apt to permit of the endosmosis.

Experiment No. 4.—A few drops of the cobra poison were rubbed into the mucous lining of a fowl's mouth at 3.42 p.m. 4.15.—No effect; no sign of either local or constitutional disturbance. 12*th*, 8 a.m.—Not affected. 13*th*.—The fowl is perfectly well, and does not appear to have been in the least affected by the poison.

In this case, as in the experiments on fowl and other animals, no evil resulted from the contact of the poison with the tongue and mucous surface of the mouth.

The evidence of these four experiments is not absolutely conclusive as to the extent to which the poison may operate by absorption through a mucous membrane. They prove that absorption in the case of the conjunctiva and the Schneiderian membrane really does occur, whilst in the mouth absolutely no effect was produced. But the poison was not taken from fresh or vigorous snakes, that is, they had been some time in confinement, and its action may have been impaired. Sufficient, however, is shown to prove how dangerous the contact of the poison with the delicate mucous surface may really prove.

TWENTY-FOURTH SERIES.

Present—Drs Fayrer and Cunningham, and Mr Sceva.—
18th September 1869.

Experiment No. 1.—A dog was bitten in the fore-foot by a spectacled cobra. The snake struck the dog in the foot, and held on for a moment, at 3.27 p.m. The snake had been some weeks in captivity and had bitten before. 3.30.—The dog wildly excited, whining and licking the bitten part, which is bleeding and swollen; keeps turning round and round; sitting down and rising again in an excited manner; breathing very much accelerated. 3.40.—Licking the wound in sitting posture, and is trembling all over. 3.47.—Staggering. 3.50.—In convulsions. 3.55.—Dead, in twenty-eight minutes. Body examined at 4 p.m. Lungs not congested; cavities of the heart filled with dark blood, which reddened and coagulated firmly, directly it was removed; part was already coagulated. At 4.15, no rigor mortis.

Mr Sceva reports that a little stiffness of the limbs had taken place at ten minutes to five, or in about an hour after death.

Experiment No. 2.—A pariah dog was bitten by the daboia that had been in confinement since December 1868, and during that period had never taken food or water. It had been some weeks unused, and when taken out of the box was very active and vicious; it seemed in good health and condition. Its jaws were closed on the dog's thigh at 3.27 P.M. At 3.28, the dog was partially paralyzed; it made no noise, seemed to feel no pain; tried to move away a few paces with a staggering gait; the bitten limb almost useless; head drooping to the ground. 3.40.—Is unable to stand; limbs extended, perfectly paralyzed; breathing deeply. 3.41.—Convulsive rigidity of the limbs. 3.44.—Dead, in seven minutes.

The poison appears to have been very active in this instance, notwithstanding the condition of the snake. Paralysis of the nerve-centres seemed to follow immediately after the bite; there was no sign of pain, and the dog was unconscious almost immediately.

Body examined at 3.55.—Lungs not congested. Cardiac cavities filled with fluid blood. The blood was perfectly fluid, both in the heart and great vessels, and remained so; no attempt at coagulation occurred. The contrast with the blood of the dog killed by the cobra was very remarkable, it formed at once a firm clot. At 4.15 P.M. there was no rigor mortis.

Mr Sceva reports that at ten minutes to five, or in rather more than an hour after death, no rigor mortis had taken place.

EXPERIMENT No. 3.—A fowl was bitten by the same daboia in the thigh at 3.49. When placed on the ground it ran a few steps, limping on the bitten leg. In thirty seconds it fell over in violent convulsions; in twenty seconds more—fifty altogether—it was dead. The blood of this fowl remained perfectly fluid after death.

EXPERIMENT No. 4.—A fowl was bitten by a small cobra (*teturiah keauteah*), not fresh, in the thigh, at 4.8 P.M. When placed on the ground it ran about, limping on the bitten leg. 4.9.—Feathers drooping; crouching; rises and tries to run; its wings droop to the ground. 4.10.—Head falling over, beak resting on the ground, comb and wattles becoming livid. 4.11.—Nearly paralyzed, point of beak resting on the ground to support the head; cannot rise. 4.18.—Violently convulsed. This continued at intervals until the fowl died at 4.23. Dead, in fifteen minutes. On opening the body, the blood was found to form a firm coagulum.

The object of these experiments was to compare again the effects of the daboia and cobra poison on the blood. They clearly prove that after death from the viper's poison, however quickly it may be caused, the blood remains permanently fluid; whereas, that the cobra poison does not destroy its coagulability. The nature of the change thus wrought on the blood I know not at present in its chemical bearings, but I believe it to be effected through the nerve-centres affecting the vitality of the blood, not by a direct chemical action. There certainly are differences in the symptoms caused in the bitten animals, but they equally point to direct action on the nerve-centres as the cause of death. I have seen as much difference between the effects produced by different daboias, or by the same daboia on different animals of the same species, as in those that had been bitten by the cobra; and, on the other hand, similar differences in the effects of the bite of different cobras, or of the same cobra on different animals of the same species, as in those bitten by the daboia. In point of deadliness, they are, when fresh and vigorous, about equal; but I think that the first effects of the poison are most rapidly shown in the daboia bite.

Dr Cunningham, of the Bengal Medical Service, who is on special duty investigating the subject of cholera, and who has a microscope with high powers, has very kindly undertaken to make a most careful microscopical examination of the blood of these animals. I append his report.

General Hospital, Friday, 24th September 1869.

My dear Dr Fayrer,—Along with this I send you the drawing of the dog's and fowl's blood, which I got last Saturday. The specimens were examined, and the drawings (of which these are copies) were made on Sunday morning. In no case were any bodies seen corresponding with Halford's cells. The blood of the cobra-bitten dog was, at the time of examination, in a firm dark clot. Beyond the ordinary constituents of the blood nothing could be seen, even under a power of nearly 1100 diameters.

The blood of the dog bitten by the viper differed from the other, *1st*, In being entirely fluid; *2d*, In being of a much lighter red colour; *3d*, In containing numerous blood-crystals; *4th*, In containing a good many large and active specimens of bacteria. The fowl's blood was in both cases very much broken up and decomposed, few entire red corpuscles remaining. This state of decomposition was most marked in the blood of that which was bitten by the viper. In both specimens were a few of the circular cells which occur in fowl's blood under ordinary circumstances.

With many thanks for the opportunity which you have given me of examining the blood, I am, etc., D. Douglas Cunningham.

TWENTY-FIFTH SERIES.

Present—Dr Fayrer and Mr Sceva.—25th September 1869.

Experiment No. 1.—A dog was bitten in the thigh by a fresh cobra (*gokurrah*) at 4.3 p.m. At 4.4 p.m., thirty drops of eau de luce, diluted with water, were poured down the dog's throat. The dog was much excited, and ran about limping on the bitten leg, which was already nearly paralyzed. 4.5.—Another dose of thirty drops administered. Drags the partially paralyzed leg as he walks. 4.8.—Another dose of thirty drops administered. 4.9.—The dog staggers as he walks; frothing at the mouth; looks much depressed.

4.12.—Lies down; retching. 4.13.—Convulsed; another dose administered. He lies paralyzed, and cannot move; the heart still beats; no respiratory movements. 4.14.—Convulsive gasping. 4.15.—Dead, in thirteen minutes. Two hours after death the rigor mortis was complete.

I fear the eau de luce must be classed with other "antidotes."

Experiment No. 2.—Poison taken from a fresh cobra (*gokurrah*), and a drop inserted between the lids of a fowl's left eye, at 4.20 P.M. The eye closed immediately. 4.25.—The eyelids already much swollen. 4.37.—So much swollen that the eye cannot be seen. 4.38.—No constitutional indication of the poison. Another drop inserted; conjunctiva deeply injected and chemosed. 5 P.M. —The fowl crouches, but is easily roused; it seems slightly affected by the poison. 5.10.—Crouching. 9 P.M.—Is drowsy; crouching, with wings drooping, and the point of the beak resting on the ground.

26*th September*, 7 A.M.—Lying on the ground with one wing extended; unable to walk. 1.30 P.M.—Lying down on one side; gasping; on being roused, staggers and falls down. Has spasmodic movements; shivering; feathers ruffled. 6.9 P.M.—In the same state. 27*th*, 6 A.M.—Lying on one side, with the legs extended; frequent defecation. 9 A.M.—Appears to be improving; able to crouch on its feet. 4 P.M.—Is much better; takes food and water. 9 P.M.—Still improving.

28*th September*, 6 A.M.—Sits naturally on its feet; eats well; the swelling of the eye much reduced; is able to stand, but cannot walk much; the legs appear to be benumbed, or to have locomotor ataxy; steps in an awkward manner. 7 P.M.—The bird seems to have recovered.

The fowl had a very narrow escape. It clearly proves that the poison acts by absorption through the conjunctiva.

Experiment No. 3.—A drop of fresh cobra poison was put into a dog's eye at 4.27 P.M. The lachrymation was immediately profuse; rubbed the eye with his fore-paw. 4.30.—Conjunctiva much injected; he is very uneasy, rubbing the eye with his foot. 4.38.—Lies curled up with his head between his fore-legs. Another drop inserted into the same eye. 4.40.—Appears sluggish, but is not constitutionally affected beyond this. 5 P.M.—The dog is lethargic; lies with his head between the legs; eyelids and conjunctiva intensely swollen. 5.10.—No change. 9 P.M.—Eyelids closed, and greatly swollen. 26*th September*, 7 A.M.—Appears lively and free from pain; swelling of the eyelids much reduced. 27*th*, 9 A.M.—Eats well, and does not appear to suffer any pain. 9 P.M.—The same. 28*th*, 6 A.M.—Eyelids slightly swollen. 7 P.M.—Nearly recovered.

It is to be noted, that although most flagrant inflammation was excited in the eye, it had not, as in the ordinary form of conjunctivitis, a tendency to suppurate. The eye, although temporarily damaged, the cornea being rendered opaque, was not destroyed, as is so frequently the case in the specific form of ophthalmia.

This experiment, like the last, proves that the poison is not only absorbed through the conjunctiva, but that it is a local irritant. The inflammation is intense, but it subsides without treatment; and although the cornea is rendered opaque with cloudy opacity, it would evidently soon recover. It seems quite clear from these experiments that the notion that the poison is not operative, unless introduced directly into the blood, is not tenable, and that it is capable of endosmosis.

The following incident is interesting, as it shows how one may be mistaken about a snake-bite, although the evidence of its infliction seems complete:—

A short time ago, my friend Dr —— wrote to me, saying that a person had been to him, to inform him that he had been bitten by a cobra, and that he had prevented any evil effects by the timely use of measures known to himself. He offered to bring the sufferer, with the snake, for inspection. Accordingly, my friend, accompanied by the patient, who brought with him a gurrah containing a full-grown and vigorous cobra (*keauteah*), made their appearance the following morning, and I had the fullest opportunity of inquiring into the case. He informed me that he was fond of snakes, and was in the habit of handling them, having no fear of their bites. The cobra that had bitten him the day before had been only recently caught in his presence by a professional snake-catcher. He had purchased, and had been playing with it, when it bit him, through some inadvertence on his own part, on the back of the middle finger of the right hand. He immediately knocked the snake off; the punctures bled freely, and he vigorously sucked the wounds for some time, having also, I think he said, tied a ligature tightly about the wound. He felt no ill effects from the bites. There were two recent marks on the finger which just corresponded to the position of a cobra's fangs. They looked healthy, and free from any irritation or mischief.

He took the snake out of the gurrah, putting his hand in among its coils fearlessly, although it hissed and tried to strike. He placed it on the ground, where it deported itself after the fashion of cobras, erecting its head and hood, and striking at whatever came near it. He sat on the ground and allowed it to crawl under his legs, caressing it at the same time. This, I confess, aroused my suspicions, but I warned him of the extreme danger he was probably incurring, and I asked him if he was sure the snake had its fangs; he said he had no reason to doubt it, for it had been caught wild in his presence, and he had never lost sight of it since. As there was not the slightest reason to doubt his statement, I was, I confess, somewhat astonished at his power of handling, thus fearlessly, so deadly an animal, and I again warned him of the great risk he incurred. He said he had often done the same with other snakes, and nothing had happened to him until on this occasion.

I have no doubt whatever that he fully believed all he said, and that he imagined he had prevented mischief by his treatment of the bite. To attest it, he had put himself to some inconvenience to show me the bites and the snake that inflicted them, and there was no apparent reason for mistrusting his account of the matter.

He was about to take his leave, when, being still sceptical, I asked to be allowed to examine the cobra's fangs. He made no objection, but seemed rather to dislike opening the snake's mouth. We, however, effected this between us, and it proved that there were no fangs at all. They had long been removed, and the partially-exposed roots of the broken teeth were barely visible above the sheath, leaving just rough surface enough to scratch whatever they came in contact with. He seemed more astonished than I was, and assured me, what I did not doubt in the least, that he had fully believed in the existence of the fangs; for, as he said, the snake had been freshly caught in his presence, and he had had it ever since.

I advised him to be more careful in his future dealings with the ophidia, as the next pet cobra might prove to have fangs, and the disposition to use them.

Had this gentleman gone away without examination of the snake's mouth, what other conclusion could have been drawn from his evidence than the most dangerous one, that the bite of a large and vigorous cobra may be inflicted, and yet that the simplest means are sufficient to obviate the evil results? It is probable that if the details of similar stories—and they are not unfrequent—could be analyzed, they would receive an equally simple and satisfactory explanation. It is not necessary, in investigating the real truth of such accounts, which are often so largely tinctured by ignorance and credulity, to impugn the veracity of those who relate them, and who are so prone to believe in the marvellous, and to deal with the improbable, simply because it is so.

I do not for a moment doubt that this gentleman, who so kindly volunteered to demonstrate the successful treatment of the bite of a deadly snake, believed in the whole story, and had not the faintest notion that he had been deceived, either by accident or by the snake-man, who captured what was probably already a capture in his presence. But the direct evidence of the snake's edentate upper jaw was more conclusive to him, as well as to us, than any amount of circumstantial testimony to the contrary.

I may here mention, shortly, another case which was related to me a few days ago by a gentleman holding an important post in one of the Bengal railways, who was an eyewitness to what he described. He told me that he sent his servant to bring a bottle of soda-water. The man went to do so, and in reaching out his hand, in what was probably an obscure or dark part of a room or godown, he must have actually placed his finger in or close to the snake's mouth. He came back to his master and said he had been bitten by a snake, and pointed to the two punctures on the finger as attestation of it. Further proof was not long in making its appearance, and within forty-five minutes the wretched man was dead. I hope to receive the details more at length, and to learn something of the unfortunate man's condition during the operation of the deadly poison. Had the finger in this case been removed at once, or had a ligature been very tightly tied above the bite, the result might have been different. I say "might have been," because in the experiments made on the lower animals I have found that unless amputation or excision is made with the greatest promptitude, the poison has already entered the circulation, and is rapidly running its course to the nerve-centres, where it proves fatal.[1]

I would take this opportunity of requesting medical men, or others who have the opportunity of seeing cases of snake-bite in men, or even in animals, when well authenticated, to be so kind as to take the trouble of sending a brief account of the circumstances, the symptoms, and the results, as they may have leisure or inclination to record; in all cases especially noting the kind of snake that inflicted the bite.

CASES OF POISONED BITES.

The two following cases are most interesting; the first as showing how liable one is to error, even where the evidence seems perfectly complete. There can be, I believe, no doubt that the lemur or *Nycticebus tardigradus* is a most harmless, gentle little creature, and yet it is convicted on the best evidence of poisoning a man by its bite as a venomous snake would have poisoned him. The effects, so well described by the author of the paper, were probably due to mental causes, with some coincident disorder. This is a good example of the necessity for extreme caution in arriving at conclusions, or of generalizing on insufficient data. I am exceedingly obliged to the talented inquirer for his kindness in sending me the notes of this case, and hope he will continue to note any observations he may make on poisonous animals and their bites.

The second case is also a very interesting and most graphic one of death caused by the bite of the bungarus cæruleus or krait. I have as yet, notwithstanding many efforts to do so, been unable to obtain a living specimen of this snake. I should feel very much obliged to any one who would send me living specimens for the purpose of experiment; they would travel very safely for a long distance in a common box, with a little loose earth and a few holes bored for ventilation; addressed to the care of Mr Sceva, 10 Kyd Street; they would be most acceptable.

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[1] This occurred near Calcutta, and the snake was one of the varieties of cobra.

No. 1.—On the 17th December, while clearing trees and jungle on the road between Chittagong and Ramoo, near Hurbaug, an alarm was raised by the coolies that a young tiger had been found. Myself and an inspector of telegraphs working under my orders went to the spot, and discovered a small animal, apparently crouching, on a low bough. The coolies and one or two travellers from the road surrounded the tree and captured the animal; the first man who seized it, not being able to tell at which end its head was, was bitten. A string was passed round the animal's neck, and it was brought on to the road.

Description of the Animal.—About 18 inches long, quadrumanous, tailless, without callosities, colour sandy, hinder extremities long and powerful; index finger of forehand short, apparently the shortest finger; head small, neck scarcely perceptible, the head appearing to be joined directly to body; ears small, and had the appearance a cat's ear would have if cropped close; face triangular, nose being sharp; eyes very large indeed, with vertical pupils contracted to a narrow line in sunlight, much like a cat; motions slow and awkward on the ground; fur fine and close. The animal was not known by name to any one of the natives of the place; many were attracted to see it by a rumour that it was a tiger cub. One man said he had been seventy-five years in the place, and had never seen one before. Another man had seen one, and killed it some short time before; but of the many who saw it, travellers, villagers, etc., none could name it.

A syce in camp said it was a "hoo ka butchaha," that its bite would cause giddiness, but the person bitten would not die soon (!). Having no zoological works of reference, I have been unable to name the animal. Other persons who did not see it suggested it might be a hookoo, but this I cannot decide on; the descriptions given in books, or the specimens in a museum, are necessary; the animal is not one it would be difficult to recognise. I thought of killing the animal and salting it for investigation; but it was suggested to me to keep it alive; and as this would give opportunities for trying its bite on animals, I tied it up by the neck; its head and neck being of the same circumference, it slipped its head out of the string. I then tied it by the waist, and fastened it by a dog-chain to a bush. It escaped again after dark; and although all the men in camp turned out at once, and within ten minutes of its escape, it was not recaptured. Rewards were offered for it dead or alive, or for one like it, without effect.

The Effects of the Bite.—The man who was bitten was Magoonally; father's name Assanally; village Sathkurna; age about thirty; spare; travelling to Akyab to work at cutting the rice crop; has several scars from cuts; does not faint at sight of blood; did not faint when he cut himself passing along the road. Seeing the attempts to surround the animal, joined the coolies; as the animal crouched, could not tell which was its head; seized it, and it turned round and bit him on first finger of left hand, first joint, near nail; bite a slit about half an inch long. Certainly within five minutes of being bitten the man was senseless; he reached the road with difficulty, and speedily became insensible, having first complained of pain in the arm to the shoulder. I ordered him to be kept horizontal, a tight string tied round the arm above the elbow, and I sent to the camp for brandy. The face had a very anxious expression at first. I did not suppose the effect due to anything but fear, or a constitutional horror of blood. I therefore tried to persuade the man and the bystanders the animal was a harmless monkey. A native passing stopped, performed ceremonies over the injured man, bled by scoring his arm lightly with a sharp knife. This I did not interfere with, finding the man continued insensible. I sent to ask an inspector, working a short distance off, if he had ever heard of a similar case, or seen the animal before. Neither he nor the passers-by knew the animal, nor had ever seen one before. When the brandy arrived, an hour or more after the accident, the man was still almost senseless; weak brandy-and-water was poured down his throat; he gradually improved; but although bitten between 11 A.M. and noon it was about 5 P.M. before he could walk, even with assistance. As soon as he was able to speak, he complained of great pain in the abdomen. I ordered him to be rubbed, and refused to allow him to be removed from where he lay. In the evening he was taken between two men to a mosque. The next evening he came to the camp recovered, but weak. He said he felt pain in the hand first; that it extended up the arm to the other arm; that he became giddy; the pain extended to his legs and body; that he was insensible during the whole time the native practitioner was operating on him; that he had a burning pain in his abdomen on recovery from insensibility, and that this pain continued all night; that he did not recover until the next morning, and that he then (evening) felt weak from the effects of the illness: he was fasting when bitten. While the animal was tied up at my tent a man who came to see it recognised it as like one he had killed some short time before. He told one of my men, an intelligent man, that he received information from a cowherd, that the death of a cow of his was due to the saliva of one of these animals having been swallowed with grass. The owner of the cow went to see the animal, saw it, killed it, and threw it into a khaul; but his dog attacked the animal, got bitten, and died the next day. This case is of use, as corroborating the one more especially referred to. The cause of the death of the cow may be open to doubt, but the man asserts the dog was unmistakably bitten, became ill soon after, and died next day at its owner's house. The conclusions I draw from the above are—*firstly*, that the man Magoonally was really bitten by a certain quadrumanous animal in the presence of an inspector, myself, and a number of coolies and native travellers; *secondly*, that serious effects followed immediately after the bite, such effects indicating some powerful interference with the functions of the nervous system; *thirdly*, that no cause other than the bite can be indicated as having produced the effect referred to; while the rapidity with which the effects were produced, their duration, and nature, were such as by analogy could be attributed to an animal poison.

The proof of the toxic action of the bite of the animal is as rigid as possible; it was probably greater in the case under reference, as the sufferer was fasting. I do not remember to have seen mention of any similar fact in any of the works on toxicology I have seen. At present I have none to refer to. The fact may perchance be a new one; but at any rate probably these cases are very rare indeed, and observations of any value very few; one case may be of value; and although it is incumbent on me to refer to existing works on zoology and toxicology, both to identify the animal and ascertain if the fact is a new one, as I suppose, before making it known, having no means of making such, I have no alternative but to depend on the existence in those, with the means at their disposal, of that desire to add to the common stock of knowledge, into the ocean of which it is my highest ambition to add a drop.

JOHN C. DOUGLAS,
Teacher of Science, Dept. of Science and Arts, E.B.

Note by DR J. ANDERSON, *Curator of the Indian Museum.*

The description of the animal leads me to believe that it must have been *Nycticebus tardigradus*, or, more accurately *N. javanicus*, for the former appears to be only a local variety of the latter.[1] It is a most harmless little animal, living chiefly on insects. Grote took one to the Zoological Society from me that I had for more than one year at the Botanical Gardens. I distinctly remember being bitten by it on one occasion, and my brother's old servant Nubboo, who was killed by a snake about a year and a half ago, was also bitten, but with no ill result. I recollect those occurrences, because the natives about had a horror of its bite. I had other three living specimens when I left for Younan, but they were killed in my absence. The latter came from Assam (Goalpara), and I am inclined to regard them as distinct from the Malayan form that extends up the Peninsula as far as Bengal. Its occurrence at Chittagong is nothing remarkable; and now that it is got there, I shall take the opportunity to try to induce Mr Douglas to get some for the museum, as I want more materials before I can decide on the specific identity or not of the Assam form with *N. javanicus*.

4th April 1870.

[1] The English name is *Slow lemur*.—J. A.

No. 2.—*Death from Bite of a Krait.*

Reported by DR THOMSON, H.M.'s 76th Regiment.

In July 1865, while stationed at Hazareebaugh, I was roused one morning at 2.30 to see a young kitmutghar in my employ, said to have been bitten by a krait. I found him half sitting up, his head supported by an old Brahmin, who was holding some root to his nose, supposed to be an antidote, and small portions of which had been given to the boy to chew. I was told that the lad (aged about eighteen years) had been bitten on the tip of one of his fingers while asleep in the cook-house, that the pain of the wound awoke him, and he called for help. A krait was immediately discovered in the cook-room, which was captured alive and put in a chatty. Fully half an hour had elapsed from the time he was bitten before I was called to him. Having ammonia in the house, I at once gave him a dose with brandy, and then proceeded to examine the wound. This I found to be one minute puncture on the tip of a finger, with a small drop of congealed blood on it, such as would result from the prick of a very fine needle. The back of the hand was puffy and swollen, but the swelling did not extend beyond the wrist. The length of time which had elapsed since the bite was received rendered local treatment next to useless, nevertheless I tied a ligature above the wrist, and rubbed liquor ammoniæ into the wound. The boy's countenance was anxious, and his breathing short and hurried; he complained of uneasiness and constriction across the chest. He evidently had no hope of recovery, as the moment he saw me he exclaimed—"Salaam, Sahib, *ham jata! ham jata!*"

Finding the pulse becoming smaller and surface getting cold, I applied sinapisms to the cardiac and epigastric regions, to the calves of the legs, and the inside of thighs, at the same time giving ammonia and brandy in full doses about every ten minutes. About 3.30 A.M., he began to get drowsy; up to this time he had been quite conscious. I then had him walked about smartly by a couple of men, until, finding that he was losing all power over his limbs, I had him placed on a charpoy, and endeavoured to excite consciousness by slapping the calves of the legs, thighs, buttocks, arms, etc., and applying the button cautery along the spine. All was of no avail; the breathing became stertorous, pupils fixed, and complete coma established. He gave one or two slight convulsions, and about 5 A.M. expired, being two and a half hours after I saw him, and three hours from the time he was said to have been bitten.

No post-mortem was made. About four hours after death the body was swollen, abdomen distended, and frothy bloody mucus oozed from mouth and nostrils. I examined the krait. It was about 2½ feet long, and its fangs were perfect. The above facts are given from memory, as I kept no notes of the case. Kraits abound at Hazareebaugh. I killed several during my stay there, and so did many of my acquaintances.

THAYETMYO, 10*th March* 1870.

ARTICLE VIII.—*On a Case of Dislocation of the Hip-Joint Downwards and Inwards, reduced by Manipulation.* By JOSEPH LISTER, F.R.S., Professor of Clinical Surgery in the University of Edinburgh.

THERE is no more striking improvement in practical surgery of late years than the manipulative treatment of dislocations of the hip-joint; the simplicity and facility of the new method presenting a remarkable contrast with the old cumbrous and laborious practice. This has been well illustrated lately by a case under my care in the Infirmary.

A man, 20 years of age, was at work in a shale-mine on the 11th of July, attempting to fix a wooden support for the roof, when the prop slipped, and a great mass of the shaly strata fell upon his back, forcing him to the ground upon his knees, which were driven violently apart. When I saw him at noon on the 12th, the thigh was fixed in the abducted and semiflexed position, with a marked appearance of elongation, and the head of the bone was to be felt with the utmost distinctness beside the perinæum, having been displaced to the inner side of the foramen ovale, so as to rest upon the ramus of the ischium. Twenty-four hours had elapsed since the accident; and the patient being one of the most muscular men I ever saw, there would formerly have been no hope of effecting reduction without resorting to the pulleys. Chloroform having been given, I flexed the knee and thigh completely, rotated freely outwards and then slightly inwards, and on extending, the limb found its position normal. All was done within a few seconds, and without the slightest violence.

Part Second.

REVIEWS.

RECENT WORKS ON DISEASES OF THE EYE.

(THIRD NOTICE.)

1. *Diseases and Injuries of the Eye: their Medical and Surgical Treatment.* By GEORGE LAWSON, F.R.C.S., etc. London: Henry Renshaw: 1869. Pp. 339.
2. *A Practical Guide to the Study of the Diseases of the Eye: their Medical and Surgical Treatment.* By HENRY W. WILLIAMS,

A.M., M.D., Ophthalmic Surgeon to the City Hospital, Boston, etc., etc. Third edition, revised and enlarged. Boston: Fields, Osgood, and Co.: 1869. Pp. 414.

3. *The Theory of Ocular Defects and of Spectacles.* By Dr HERMANN SCHEFFLER. Translated from the German by ROBERT BRUDENELL CARTER, F.R.C.S., etc. With Prefatory Notes and a Chapter of Practical Instructions. London: Longmans, Green, and Co.: 1869. Pp. 240.

WE have seldom read a better text-book than Mr Lawson's little work on Diseases of the Eye. The descriptions are clear and accurate, and the theory and practice advocated in accordance with the views of the day. In most text-books, where information must be condensed as far as practicable, we generally find that the space is very unequally allotted, subjects in which the author is specially interested being more fully discussed than their importance deserved. This fault has been very well avoided by Mr Lawson, who, in our opinion, has shown great judgment in his condensation.

In looking through the book, we have only found two slight slips which require correction in future editions. At page 77, in mentioning the treatment of mydriasis and myosis, Mr Lawson refers to the local application of atropine and of Calabar bean, but unfortunately speaks of the use of atropine in mydriasis and of Calabar bean in myosis, when, of course, the opposite is what is meant.

At page 197, the following is given as the ophthalmoscopic appearances of a myopic eye:—"*By direct examination*—that is, by aid of the mirror, without the use of the object lens—the structures of the fundus may be seen at some inches from the eye, and if the patient be made to move his head in one direction, the retinal vessels will appear to travel in the other, showing that the image which is seen is inverted. The reverse of this occurs in the *direct* examination of hypermetropic eyes, when the parts at the fundus will seem to move with the head, proving that the image is erect." The author's meaning is not very clear here. Is the patient to keep his eyes fixed on an object while he moves his head, or is he to move his eyes in the same direction as his head? In the former case, the retinal vessels will not change their position at all; in the latter, the vessels will appear to travel in exactly the opposite direction to that described by Mr Lawson. In myopia, on the patient turning his eyes in one direction, the retinal vessels will move out of the field of vision in the *same* direction as that in which the eye is moved, while, in hypermetropia, this is reversed.

The text is illustrated by a few woodcuts, and appended is a useful formulary.

We can, in conclusion, confidently recommend this manual as a trustworthy guide to the perplexed student of eye diseases.

The next book on our list is one of very unequal merit; some of the chapters, such as those on Strabismus and Posterior Staphyloma, and the whole Appendix (containing an account of "recent advances in ophthalmic science"), being in all respects excellent, while other chapters are, on the contrary, very imperfect.

Dr Williams is very strongly prejudiced against the employment of nitrate of silver in any form of conjunctivitis, and considers the crayon of sulphate of copper a much superior application.

> "The abuse of strong solutions of the nitrate of silver is another evil to which I feel bound to call attention. It is apparently considered, by some, a specific for all the ills which eyes are heir to,—and is so lavishly employed that we not only observe, as results, a disagreeable olive stain of the conjunctiva, but, in some instances, destruction of the folds of this membrane and adhesions between the lid and the globe, where solutions approaching to saturation have been incautiously applied. It frequently aggravates the symptoms, and I can assert, as the result of many comparative trials, where the nitrate, in solutions of different strength, has been used for one eye, and solutions of the sulphate of zinc, with perhaps the crayon of sulphate of copper, for the other equally diseased eye of the same individual, that I have always found recovery slower in the eye to which the nitrate of silver was applied, and have often been compelled to abandon its use and substitute the treatment under which the other eye had already recovered. I do not say that the use of the nitrate of silver should be abandoned. It may be resorted to with good effect in certain cases; but entire abstinence from its use, as an application inside the lids, for a long period in my own practice, has proved that it may be dispensed with without its want being felt, and I am glad to find the more recent authorities restricting its use within far narrower bounds than formerly. My desire is, only, to caution the young practitioner against too frequent use of this powerful stimulant, in cases where a mild astringent would better serve his purpose. It would be a gain for ophthalmic therapeutics if its use should become far less general; as, even in cases where its application may be followed by recovery, the same result would equally have been attained had milder means been employed.
>
> "The crayon of sulphate of copper is capable of replacing, with great advantage, the nitrate of silver, in most of the cases where this has been in favour; especially in the treatment of conjunctival inflammation and granulated lids. It does not, like the nitrate in substance or in strong solutions, act as a caustic, destroying the surface of the conjunctiva, but as a powerful astringent. To obtain good crayons, which is exceedingly important, it is almost essential to procure crystals from a laboratory or to recrystallize a quantity of the sulphate; as, when sent to market, the crystals are so much broken that it is difficult to find suitable pieces. The part to be selected is the hard portion, free from water of crystallization, near the apex of the crystal. This is to be carefully cut with a pocket-knife, or sawn, into the desired shape, which should be that of an ordinary crayon of large diameter. It may then be rendered as smooth as a piece of glass by rubbing with a wet rag, and fitted in a porte caustique. If the selection has been well made, the crayon will wear perfectly smooth, and, if carefully wiped after each application, may be used a great number of times, and for various patients, without danger; though, of course, as a precaution, the physician should be provided with several if he has to employ them upon those whose diseases are highly contagious. It should usually be very lightly applied, over the whole surface of the conjunctiva of the everted upper lid. Too heavy a touch should be avoided, as, if clumsily used, it causes much more pain, and acts as an over-stimulus. Where the inflammation is intense, the pain from the first applications is sometimes considerable, but it is less than that produced by an equivalent strength of the

solution of nitrate of silver; and as the patient becomes habituated to the remedy and the symptoms diminish in severity, the pain becomes trivial, even children disregarding it after the first few moments from its application, though they may have seemed to suffer very much when it is used for the first few times."

We quite agree with Dr Williams that, in general practice, nitrate of silver is much too frequently used as an application to the inflamed eye; but, in our estimation, sulphate of copper, equally lavishly employed, would produce equally pernicious effects. As regards the relative value of the two applications in granular lids, we rather incline to the nitrate of silver, although in some cases we find the sulphate of copper to answer better. As a rule, the former acts better in the papillary, the latter in the follicular variety of the disease.

Dr Williams believes that simple inflammation of the sclerotic "rarely, perhaps never, occurs as a distinct or primary disease." This belief is readily accounted for by the fact that what he describes as its vessels are the subconjunctival vessels which form the "sclerotic zone" in inflammations of iris and cornea, but which are not the true vessels of the sclerotic. In the treatment of staphyloma of the cornea, the old operation of simple abscission is alone referred to—the modified method of abscising the staphyloma of the *cornea* being erroneously introduced under the operations for staphyloma of the *sclerotic*. Our author has little faith in the employment of mercury in iritis, but trusts to the local application of atropine and the internal administration of opium.

On the subject of cataract operations Dr Williams's views are in several points peculiar. In all of the operations the surgeon is to sit or stand in front of the patient, instead of behind, as is the usual custom in this country. Thus, upon the assistant devolves the important duty of keeping the upper lid elevated and of steadying the patient's head. The old flap operation for the extraction of cataract is fully described, and reference made to Mooren's and Jacobson's modifications. The method of operating by "scoop-extraction" also comes under consideration, but, wonderful to relate, no mention whatever is made of Von Graefe's new modified linear operation, which we believe is now more employed than any other in this country, and with which the percentage of cure has been the best ever obtained by any operative procedure.

In a number of instances Dr Williams has, after extraction of the cataract, united the edges of the wound by a fine silk ligature, which is allowed to remain in till it cuts itself out, or is removed after the wound has become consolidated. One would be inclined to imagine that the ligature would act like a seton, and predispose to purulent infiltration of the cornea; but the author speaks favourably of this procedure, and says that little irritation results from the presence of the foreign body. We imagine, however, that all the advantages to be gained by the introduction of a suture may be obtained, with no risk, by the employment of the compress bandage. This, however, might be a good place for testing the powers of the carbolized gut ligature.

In discussing the expediency of placing the patient under the influence of anæsthetics, Dr Williams mentions that the sole objection to the use of *ether* is the possibility of loss of vitreous humour, or of the occurrence of intra-ocular hæmorrhage during efforts of emesis induced by the anæsthetic, and states that "the use of chloroform does not involve this objection to the same degree; but it is less safe than ether, though unquestionably very slight risk attends its careful employment." This appears to be contrary to the opinions of some surgeons in this country, who maintain that sickness and vomiting occur much less frequently and less persistently after ether than after chloroform administration.

The most unsatisfactory part of the work is that which refers to the diseases of the retina, choroid, optic nerve, etc., which is meagre in the extreme. Test-types corresponding to those of Snellen and Jaeger are inserted, and the paper and print could not be excelled, but the "Guide" requires very careful revision to come up to the requirements of the day.

Dr Scheffler's work is one of great ability, and we are much indebted to Mr Carter for so excellent a translation of it, and for the additional matter which he has incorporated with it. It is impossible here to discuss fully the many interesting and novel views advanced by the author; we must confine ourselves merely to an allusion to some of the more prominent doctrines propounded.

When spectacles are worn a feeling of strain is not unfrequently experienced. This is undoubtedly due, as is explained by Dr Scheffler, to the fact that "when any normal or abnormal pair of eyes is furnished with ordinary convex or concave centric spectacles, no change takes place in the direction of the visual lines, and none, therefore, in the convergence of the eyes; although the object looked at changes in its apparent distance on the visual line of each eye. There is, therefore, a change in the accommodation, while the convergence remains unaltered; and it follows that the proportion between the two functions is modified." As a remedy, "orthoscopic spectacles" are suggested, which "consist of a combination of lenses and prisms, so arranged that the deviation of the rays of light occasioned by the prism corresponds accurately with the change in the visual distance occasioned by the lens."

The most interesting and original chapter in the work is that on "Application," which term the author applies to that visual faculty which is subservient to the knowledge of the direction of objects. This faculty he attributes to the mobility of the baccillary layer of the retina. The author's views may be best understood by the following quotation, which will serve, too, to exemplify the general tone of the work :—

> "The bacilli, as terminal points of the optic nerve fibres, are the organs in which the physiological process excited by the luminous ether vibrations occurs; the various concussions and other affections which excite this process being felt in a manner wholly analogous to that in which sensitive organs feel mechanical concussions, pressure, traction, shock, caloric, and other effects, and producing conditions of the organism which we, by means of the consequent affection of the brain through the sensorium, call by such names as distance, direction, luminosity, colour, and so forth. We call the axial (or parallel with the axis of the bacillus) components of the luminous concussion the direction of the object. Since these components lie in the direction of the bacillary axis, the direction of the percipient bacillus is also the direction in which we feel the luminous impression, that is, in which we see objects. If we assume that the bacilli are perpendicular to the retina, and that the retina is spherical, we must see the object in a line of direction perpendicular to the retina, and this line must pass through the central point of the sphere. It has been hitherto believed that the bacilli stand perpendicular to the retina, and that the retina, at least in the vicinity of the pole, is spherical. Both these suppositions are only true approximatively and at times.
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> "In sec. 23 of the *Physiologische Optik* I have already remarked on the deviation of the retina from the spherical outline at the blind spot, where the entrance of the optic nerve forms a papillary elevation. Here the direction of the bacilli is not through the centre of the sphere; and this deviation from the spherical outline affords an explanation of the hitherto erroneously interpreted phenomena produced by the incidence of rays of light upon the blind spot. This coincidence of the phenomena with our theory is a strong confirmation of the latter; especially for this, that we feel the direction of the object in the direction of the bacilli.
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> "The mobility of the bacilli has two forms; first, the shifting of the bacilli in the retina, from which may be explained many remarkable phenomena that have led to a variety of contradictory opinions; secondly, the change of inclination of the bacilli with reference to the perpendicular to the retina.
>
> "It is the latter, the change of inclination of the bacilli towards the retina, which we will now call the nutation of the bacilli, on which the application, and therefore the recognition of apparent direction, depends. It constitutes a faculty, and is associated with an effort, precisely as the accommodation and the convergence or fixation. The striving after single vision, or after union of the visual impressions of the two eyes, is the immediate stimulus to the exercise of this faculty, precisely as the striving after clearness of impression, or after concentration of the cone of rays upon the retina, is the occasion of accommodation, and as the striving after a definite and certain recognition of the impression, by guiding its optical centre of intensity to the pole of the retina, is the occasion of convergence. No ophthalmologist can have failed to notice that, in many cases, such as in looking through prismatic spectacles or into a stereoscope, on account of the abnormal proportion of functions demanded from the eyes, the object at first appears double, but that the two images, after first being approximated to a certain degree, and when an effort is made to fix their corresponding parts, rush together with remarkable force to cover and blend with one another. In this movement of the double images, during complete rest of the eyes, I see a direct proof of the assumption that the apparent direction is variable, that it depends upon material changes in the eyes, and that it requires a definite measure of nervous power to be exerted."

A chapter is devoted to Max Schultze's views regarding the microscopic structure of the retina, in which it is said to be demonstrated that the rods and cones are nerve elements and the terminal portions of nervous fibres.

The book contains many other curious and original theories interesting to metaphysicians as well as physiologists and ophthalmologists; and to their attentive consideration we commend the work.

On Comparative Longevity in Man and the Lower Animals. By E. RAY LANKESTER, B.A. London: Macmillan and Co.: 1870. Pp. 135.

ORIGINALLY written as a University Essay, Mr Lankester has now given to the world an elegant and well-written disquisition upon a subject as regards which there are hardly any positive data on which to reason. Comparative longevity in animals is a question as to which we may safely say next to nothing has hitherto been recorded; and in the case of man we are really little better off, as will be at once evident, when it is seen what the author understands by this term. The subject is a popular one, and probably little more could be said at present, with any show of authority, than has been here set down by Mr Lankester, though we cannot say that he has to any extent dispelled the palpable darkness in which the whole question is involved. Almost all the theoretical bases which are as yet available in reasoning on longevity were long since laid down by Hufeland, Flourens, and more especially by Mr Herbert Spencer, in his classical work on the "Principles of Biology," to which the author acknowledges himself deeply indebted. In fact, as he says himself, "it would be perhaps the most satisfactory way of treating the subject of longevity to assume the contents of Mr Spencer's volumes, and to write a last chapter on the Duration of Individuals." However, Mr Lankester has the decided merit of placing all that is known on longevity before the public in a readable and intelligible form, and the subject is one of such intricacy and complexity that this is no small service.

By the term "longevity," the author understands "the length of time during which life is exhibited in an individual;" and for the purposes of this definition he follows Mr Spencer in considering as individuals "all those wholly or partially independent organized masses which arise by multicentral and multiaxial development that is either continuous or discontinuous." In any species the average duration of life of all the individuals born gives us the "mortality" or "average longevity" of the species: but the subject with which Mr Lankester is really occupied is what he terms the "potential longevity" of species, or, in other words, the normal "lease of life" of individuals in each group. Potential longevity, again, may be divided into normal and absolute potential longevity, the two being merged in the case of man, alone of all animals. In no case, however, as pointed out by the author, is the problem in any way affected by abnormal instances of excessive length of days in particular individuals of any species. Interesting chapters, which we have not space to analyze, follow, on inherent death, on the elements of the life period, and on high individuation or evolution, and small expenditure, as favouring longevity. At page 55, there is a table giving all the available statements as to the duration of life in individuals of most of the groups of the animal kingdom and in some plants. These statements are doubtless all that can at present be brought forward, but they do little more than prove the very unsatisfactory state of the whole question as to data. The author's remarks on the deductions which may be drawn from this table are well worth perusal, though we are unable in all cases to agree with his conclusions. We question, for example, whether parrots can be said to be "undoubtedly the very highest of the birds in development," and it is by no means certain that they are the longest-lived.

The remainder of the work is chiefly filled with a summary of what is at present known as to the longevity of man. The conclusions drawn from the evidence are often of great interest and value; but here, as elsewhere, the want of positive data is painfully apparent. Upon the whole, too, we are disposed to think that insufficient weight is attached to the psychical phenomena of man—his passions, emotions, and intellectual efforts—as influencing his longevity. Thus the author concludes that "*hereditarily* the power of life in all men (within a few generations) is the same, disease, habits, and customs being dependent on external conditions, and thus longevity is rendered subject to external rather than internal causes in the case of man; though with these varying external conditions are correlated small structural variations, which may make the longevity in a certain sense appear to be dependent on structure, so intimately bound up, so closely corresponding and reciprocal, are structure and habit, even when dominated by such an organ as man's brain."

We are more in accord with the writer in his views as to the influence of various states of civilisation on the longevity of the human race, which is the last quotation space will allow:—

> "We have seen that the influence of civilisation cannot be fairly examined inductively; but the facts quoted, and the conclusions they offer, warrant us in supposing that a civilisation of the highest order, in which the efficiency of the community and the efficiency of the component individuals is greatest—in which there is the most harmonious action, the greatest happiness for the greatest number, the least excessive expenditure with the least luxury, where regularity and temperateness are innate characteristics—will be that state of civilisation most favourable to longevity. It may be supposed by some that since the tendency of civilisation at present is to call out increased mental expenditure, that even when the other conditions of longevity are complied with, future men will lose rather than gain in longevity. This, however, depends upon the assumption, which we have no grounds for allowing, that the structural capacity for such requirements will not increase simultaneously. There is every reason to believe that it will, that it *is* so doing. We are now in the

midst of a struggle—in a transition state—which is really causing a survival of the fittest, operating chiefly through the emulation of communities, but also on individuals, and by means of this struggle greater mental power is being added to the human race. As we had occasion to remark in the case of organisms generally (quoting Mr Herbert Spencer), increased difficulty of life-conditions necessitates increased evolution, and this is true for man's mental progress as for general structural progress. Were the evolution not always in advance of the provoking cause, we might anticipate the extinction of humanity by the excessive competition and excessive difficulties of existence which must accompany increased population. More justly, as it appears, and more hopefully, we may look forward to a time when, the whole earth being peopled, man will become finally adjusted to his conditions by the limitation of his expansion and the closer interaction of the members of the human aggregate. In that almost perfect civilisation—where the greatest happiness for every individual must finally be attained—will man's longevity be extended? It does not seem improbable that this may be the case: and certainly an average longevity coincident with the potential is, under those conditions, to be looked for. Men would no longer 'die of disappointment,' but would all attain eighty or a hundred years. There is no apparent reason why longevity should not increase beyond that limit, and advance with advanced evolution, and the diminished expenditure implied in more complete adjustment."

Lectures on Surgical Pathology, delivered at the Royal College of Surgeons of England. By JAMES PAGET, F.R.S., D.C.L. Oxon., Surgeon to St Bartholomew's Hospital. Revised and Edited by William Turner, M.B. Lond., Professor of Anatomy in the University of Edinburgh. In one vol. 8vo, pp. 850. With 131 Woodcuts. Third Edition. Longmans, Green, and Co.: 1870.

IT would be difficult to name any work in the catalogue of modern medical literature which has so thoroughly and satisfactorily done what it was intended to do as this one has. Before it was published, many valuable facts and much able generalization on the subject of surgical pathology existed, but in separate works, and without any attempt at collection or arrangement in an accessible form. The first edition of this work was the first real success in supplying this want in this country, and each succeeding edition has only increased the value of the work, and most fortunately done so without unduly adding to its size or price. The position to which its author has attained at the head of British surgery, and the consequent claims upon his time, have prevented him from undertaking the labour of editing the later editions, but he has not ceased to add to its value from the stores of clinical experience which he has amassed, while compelled to trust the pathology to other hands.

Nor could he have been more fortunate in his choice. Mr Turner's immense powers of work, his zeal in pathological investigation, and, what is almost equally important, his power of getting others to work with him and for him, have enabled him, notwithstanding all his other labours, greatly to increase the value of each edition. His extensive acquaintance with the languages and medical litera- of the Continent are visible in every chapter, and ensure for the reader that he shall be informed not only of the latest British, but also German and French observations. The new information is given in the text when needed, but chiefly in the form of very copious notes, which contain an immense amount of references and bibliographical information, which greatly aids the reader in pursuing his investigations on any special subject.

In type, paper, and style of production, the volume is worthy of the eminent firm who have published it.

Quotation is unnecessary and comment superfluous in noticing a work so useful and unexceptionable. Our only advice is to those who have not got the work—buy it.

Lectures on Ekzema and Ekzematous Affections. By ERASMUS WILSON, F.R.S., Professor of Dermatology in the Royal College of Surgeons, England. London: Churchill and Sons: 1870.

Eczema, its Nature and Treatment. By TILBURY FOX, M.D. Lond., M.R.C.P. London: Henry Renshaw: 1870.

REGARDING these two books we have not much to say, as we recently took occasion to put our readers in possession of the peculiar views of the authors on this subject. They are both reprints of lectures, the former of which appeared, for the most part, in the *Journal of Cutaneous Medicine*, and contains, in a somewhat more expanded form, the views and opinions of Mr Wilson, which are presented to the medical world in this volume for the convenience of reference. Prefixed to the true subject-matter is a long chapter, extending to one hundred and forty pages, on the Anatomy, Physiology, Pathology, Etiology, and Therapeutics of the Skin; and principles of classification of Cutaneous Diseases. The next hundred pages are devoted to a description of Ekzema and Ekzematous Affections; and the final hundred and twenty are made up of essays, notes, and cases illustrative of Ekzema.

Dr Fox's work formed the Lettsomian Course of Lectures delivered before the Medical Society of London this year, which appeared from time to time in the *Lancet*, and they are now published in this form "in obedience to a wish to that effect expressed by many of the author's professional confrères." In an introductory chapter, Dr Fox points out the bad habits of dermatologists, which, he thinks, have contributed very considerably to throw unnecessary obstacles in the way of the student in his attempt to master the subject of cutaneous medicine. As we have already, on a former occasion, indicated, Dr Fox is an enthusiastic admirer of Willan, and a stanch defender of his system, whose rendering of eczema—which has been greatly misrepresented—he maintains, "is the most philosophical, the truest to life, and compares favourably with the endless divisions and readings of that disease as given by modern authors." Dr Fox divides eczema into three varieties, each with several stages, viz., E. Simplex, E. Rubrum, and E. Impetigenodes, and he believes that eczema is caused by changes going on in the cell-structures of the skin, consequent upon perverted innervation, and not a primary and essential alteration in the character of the circulating fluid. In his third and last lecture he enters upon the treatment of Eczema.

These two books, both excellent in their way, offer as marked a contrast in the manner in which their authors treat their common subject, as the size of the books themselves present; the one compassing it in some seventy pages, while the other demands no less than three hundred and eighty to give full expression to his ideas. This power of condensing his thoughts and summarizing the important points of his subject, while at the same time putting his readers in possession of all the latest researches and observations in the morbid anatomy of the disease under review, renders Dr Fox's works at all times as readable as they are reliable.

On the Administration of Chloroform and Nitrous Oxide. By CHARLES SQUAREY, M.B. Lond., etc. Pp. 44. London: James Walton: 1869.

THIS very small treatise is, we are told in the preface, intended "to guide the student in his first administration, and to allay, to a great extent, the anxiety which the inexperienced must always feel when using such powerful remedies."

In our opinion, the student rarely requires to have his anxiety allayed during *his first administration*, but rather requires some caution to be given him lest he use his powerful drug too rapidly and too effectually.

There is nothing very new in this little book, nor can we discover that old facts are presented in any very attractive manner. Clover's apparatus for administration of chloroform is recommended; the condition of the pulse is said to be as important as that of the respiration; and at page six we are told that contraction of the pupil is a condition to be closely watched for.

> "This condition of the pupil I have been for some months closely observing, and to it I wish to draw particular attention, as my experience has convinced me that it is the sign above all others to be closely watched for, and when produced to be recognised as indicating that chloroform has been pushed as far as it may safely be. I have never known, this condition of pupil existing, the patient to make the least movement of any kind under any operation. In many cases it is not necessary to push the chloroform so far, but I am convinced it should never be pushed further; once having brought the patient into this condition, he should, in those cases in which it is necessary, be kept so much under that a score of breaths or so would, no chloroform being

administered, bring him into such a condition that his pupil would act to light; and I may say that, since following out the rule, I have neither felt, nor had reason to feel, anxiety in any case."

If the inexperienced student gets either comfort or instruction from this involved sentence, he has been more fortunate than we have been.

Under the head "Signs of Danger," Mr Squarey says, "Chloroform may kill in two ways:—*First*, by paralyzing the muscles of respiration. *Secondly*, by paralyzing the heart. In the first class of cases, and Lister maintains that chloroform kills only in this way," etc.

Now what does Mr Squarey mean by paralysis of the muscles of respiration? Lister speaks of obstruction to the respiration, which he ascribes chiefly to obstruction of the glottis by folds of mucous membrane, and which he prevents by pulling the tongue well forwards. We believe, with Lister, that attention to the pulse often withdraws attention from the far more important subject of the entrance of air into the lungs, and substitutes an imaginary for a real danger. Mr Squarey's account of nitrous oxide and its administration is very brief, and sufficient for the purpose of enabling a student to pass an examination on the subject, but contains nothing novel or original.

Notes on the Treatment of Skin Diseases. By ROBERT LIVEING, A.M. and M.D. Cantab., Demonstrator on Diseases of the Skin, and Assistant Physician to Middlesex Hospital, London. Pp. 90. Longmans, Green, and Co.: 1870.

THIS is a very unpretending little work, but seems thoroughly to fulfil the intentions of the author. He tells us, in the preface, that these short notes on the Etiology and Treatment of Skin Diseases were prepared with a view to their private circulation among the students of his class of Cutaneous Medicine at the Middlesex Hospital. They are now published at the request of friends and former pupils.

The principal forms of skin disease are arranged alphabetically for easy reference, and a brief account of the causes, diagnosis, and treatment of each is given, sufficient as a guide for the student in his dispensary practice, and in his preparation for examination. Then a short glossary of definitions of the most frequent terms used in the description of skin disease is given; and an appendix contains ninety-nine of the more frequent and useful formulæ of remedies, chiefly derived from the practice of Hebra, Anderson, and Startin. These are referred to under their respective numbers in the sections which describe the various diseases; so, much room is saved in the book, which is very handy and compact. We can recommend it most highly to our readers, especially our younger readers, as an easy and portable guide to the knowledge of diseases of the skin.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XLIX.—MEETING XI.

Wednesday, *1st June* 1870.—Dr MATTHEWS DUNCAN, *Vice-President*, in the Chair.

I. *Dr P. H. Watson* exhibited a PHOSPHATIC CALCULUS, weighing 2 drachms, of a loose crystalline aspect, which a fortnight ago he had removed from a patient, æt. 64, by lithotomy. The case was one of long-standing stricture of the urethra which had existed since youth. On examining the condition of the stricture, it was found to admit only a No. 3 bougie. The calculus was recognised as small and soft, but the contracted state of the canal rendered the operation of lithotrity improper, and lithotomy by the usual lateral operation was adopted. The case was, after the operation, treated by means of carbolic acid dressing, the tube being clothed with a parachute of the lac and carbolic acid plaster, and retained in position with a T flannel bandage. The urine escaped through the tube alone, to which was attached a piece of india-rubber tubing, long enough to be laid in coils in a solution pan containing carbolic acid solution. After the removal of the tube, the wound has been carefully dressed with carbolized lac plaster. The patient has made a good recovery.

II. A CALCULUS, weighing 3 ounces, which he had removed a week ago from a patient æt. 58. In this patient the case was complicated by the presence of a stricture of the urethra. The large size of the stone and the contracted state of the urethra, rendered lithotomy the only suitable method of treatment. On grasping the calculus with the forceps, it crushed at once, and was removed piecemeal. The after-treatment was conducted in the same manner as above described. The result has been equally satisfactory.

III. A CALCULUS removed from the urethra of a boy æt. 5. It was situated just in front of the bulb, and gave rise to symptoms of urinary irritation in passing water. The case was complicated by the coexistence of a very tight congenital phymosis. The calculus was easily removed by means of common dressing forceps, after dilating the contracted preputial orifice. The seizure of the calculus, which is the only difficulty in the procedure, Dr Watson said, should be always effected by passing the closed blades down the canal till arrested by the stone, then opening the blades widely and kneading the stone within their grasp.

IV. The parts removed in EXCISION OF THE KNEE-JOINT, from a girl æt. 18. She had for a long period suffered from articular disease, accompanied with suppuration. The case after excision had been treated by means of the modelled Gooch splint and suspension rod, introduced into practice several years ago by Dr Watson. This apparatus he had employed in every case with complete satisfaction.

V. The parts removed in EXCISION OF THE KNEE-JOINT, from a young woman æt. 20. The disease had existed for several years, during the course of which she had been an inmate of two London hospitals, where amputation had been suggested.

VI. The parts removed in EXCISION OF THE ELBOW-JOINT, from a girl æt. 10, in whom long-standing disease, attended by suppuration, required interference, and anchylosis in the straight position rendered the arm useless.

VII. The parts removed in EXCISION OF THE ELBOW-JOINT, from an adult, in whom anchylosis of the joint, in an awkward position, had existed for several years.

VIII. The parts removed in a case of MALIGNANT EPULIS, affecting the left side of the inferior maxilla, the floor of the mouth upon the same side, and one-third of the tongue. The affected parts (*i.e.*, the tongue, floor of the mouth, together with the base of the jaw) were removed, with a most satisfactory result and rapid recovery.

IX. A large EPITHELIOMA of the inside of the cheek, the base of the jaw, and a glandular tumour in the sub-maxillary space, removed from a woman in the eighth month of her pregnancy. She had made a good recovery, and was delivered safely of a living and thriving child a week after the operation. The operation was effected by including, by two incisions, the cutaneous tissue adherent to the epithelial ulceration within, with an elliptical strip of skin, extending from the malar bone to two inches below the jaw; then carrying an incision across this along the base of the lower jaw from the angle to the symphysis. By introducing the finger into the mouth, the knife was carried around and beyond the outline of the disease affecting the mucous membrane. The jaw was then sawn through at the angle and at the symphysis, and the lower part of the disease, after dividing the floor of the mouth, carefully dissected away from the carotid sheath.

X. HALF A FOOT which had separated as a sphacelus in a case of injury. In this case a casting of iron weighing three tons had fallen on the limb, grazing the shin, and bruising the foot. When admitted to hospital the whole foot was enormously swollen from extravasation of blood beneath the skin. On pressure the blood escaped at a small aperture on the external side of the foot beneath the malleolus. On manipulation several of the metatarsal bones were manifestly broken. The patient stoutly refused to have amputation performed. The whole cavity occupied with blood having been emptied by pressure, the carbolic acid solution (1-20) was injected at the aperture, by means of a syringe so as to distend the detached cutaneous parts, and diffused by steady pressure. Thereafter the foot and leg were carefully dressed with the carbolic lac plaster, and this had been reapplied each day, with the employment of every precaution. The process of separation had certainly taken place without smell of decomposition, but with an abundant suppurative process, and the necessarily attendant constitutional enfeeblement and general emaciation. There was no evidence of any attempt on the part of the granulation surface where it came into close contact with the dead tissues "to feed upon them," as some advanced antiseptic pathologists wished us to believe might be observed.

XI. A LARGE CYSTIC TUMOUR OF THE BREAST, which Dr Watson deemed it expedient to excise, along with the whole breast, on account of the thickening which at one point surrounded it, and on account of the lancinating pain which had recently accompanied its progress. The microscopic examination of the parts fully justified this line of treatment.

XII. *Dr Matthews Duncan* exhibited a large EPITHELIOMA OF THE VULVA, which he had removed by the galvano-cautery. He used a Groves's battery of twelve cells. With this in action, the platina wire excised the tumour rapidly and easily. The bleeding from the arteries was as fast as after excision by bistoury; but there was a great advantage in there being no oozing of blood, which is often troublesome in cases of this kind.

XIII. *Dr Muirhead* then read his paper on RELAPSING FEVER in Edinburgh in 1870, which is published at page 1 of our July Number.

Dr Bennett remarked that it would be of importance to ascertain the ratio which these forty cases of relapsing fever bore to the whole amount of fever prevalent in Edinburgh at the time. Dr Bennett also remarked that at present it was laid down in works on fever that there were three forms, all differing in their pathology and depending on different causes, one form arising from putrid emanations, another from overcrowding, and a third from starvation. He himself had charge of the Fever Hospital in 1846, when relapsing fever largely prevailed, and he could say that in not one instance had it been traceable to starvation. He was glad to see Dr Muirhead took a similar view. In forty cases of any disease admitted into hospital, it would not be difficult to find one or two instances of starvation; but Dr Muirhead's cases were all plump, and their history a remarkable contradiction to the prevalent pathological theory. The very carefully-constructed temperature charts were an exceedingly valuable contribution to the history of this disease, as were also the details as to the enlargement of the spleen and the leucocythæmic state of the blood; while the abortive attempts to cut short the relapse by quinine clearly showed that there subsisted no relation whatever between this form of disease and intermittent fever.

Dr Benjamin Bell stated, that in former epidemics of relapsing fever attacks of subacute iritis had been very prevalent. These had differed from the similar attacks due to the poison of rheumatism or syphilis, in readily yielding to quinine; he should like to know if any similar sequelæ had been observed in this epidemic.

Dr Sanders remarked, that even though we might consider the outbreak of relapsing fever in Edinburgh as actually traced to the one first victim, he should like to learn where he got it, whether from London or elsewhere, or whether it originated in himself *de novo*. The failure of the wet pack, which had been much praised by Continental observers, was a most important practical point.

Dr Peel Ritchie would like to know whether the lodging-houses referred to were licensed or not, as in all licensed lodging-houses 320 cubic feet of space was allotted by law to each inmate. In the Royal Hospital for Sick Children there had been three cases of relapsing fever, two admitted during the fever, and the third while convalescent. The whole number of fever cases had been twenty, so that the proportion of relapsing to other forms of fever, as observed in the Children's Hospital, was three to seventeen.

Dr Muirhead replied, that the whole outbreak seemed traceable to contagion, derived from one family in the Canongate, two of the children from which had been sent to the Children's Hospital. He could not say whence that family had received the fever.

XIV. *Dr Matthews Duncan* then read an account of A DISSECTION OF A MONSTROUS FŒTUS WITH DISTENDED ABDOMEN, by Professor Sanders and Dr Pettigrew. The case occurred in the practice of Dr James Carmichael of Burntisland, and an account of the confinement was recently read to the Obstetrical Society.

The body was that of a fœtus at term, and in good condition as regards the general nutrition.

Externally, the following peculiarities were observed:—The head, of the usual size, was flattened from side to side, and lay upon the right shoulder. The upper extremities were well formed; there was a supernumerary thumb on the right hand. The lower extremities were normal, with the exception that the toes were not separated, being enclosed by a common layer of skin. The trunk of the body was the chief seat of malformation. The abdomen was enormously enlarged. When full of fluid, it had presented the appearance of extreme ascites. The abdominal wall had been divided before the fœtus was brought to us; but on filling the cavity with water, the girth at the umbilicus measured 2 feet, and the quantity of water contained was 100 ounces. The penis and scrotum were of natural size, but the urethra was imperforate, and the scrotum contained no testes. The anus was entirely absent.

The examination of the *abdominal cavity* showed the following particulars:—When fully opened, the cavity was observed to be enormously bulged out anteriorly and laterally. Superiorly, the diaphragm and ribs were pushed upwards and forwards, compressing the thorax. Below, the iliac bones were flattened outwards, and the left was somewhat smaller than the right. The brim and cavity of the pelvis was small, only admitting the tip of the finger.

The enlarged abdominal cavity was occupied by—(1) an enormously distended urinary bladder; (2) a cyst or sac full of fluid (sac "A"), situated in the left hypochondriac and lumbar region, nearly in the situation of a stomach, for which it had been mistaken; (3) the intestines and other viscera lay behind the enlarged bladder, chiefly in the right and upper part of the abdominal cavity.

The *urinary bladder* filled nearly the whole abdominal cavity; it blocked up the brim of the pelvis, being too large to descend into its cavity, and reached up to the diaphragm. It measured nearly nine inches from base to apex, and five and a half inches transversely, and held upwards of forty ounces of fluid. (Its fluid contents had been lost when the abdomen was tapped previous to the delivery of the fœtus.) The muscular coat over the lower two-thirds was of great thickness (three-eighths of an inch). At the upper third the muscular coat was deficient, the walls consisting of the mucous and peritoneal coats only. At the summit was a number of calcareous patches, best seen at the inner surface. The mucous membrane was firm and smooth. In the usual situation, the urethral opening was found, small and somewhat funnel-shaped. Into it a probe could be passed along the urethra for nearly two inches; the canal then became imperforate. No openings of the ureters could be found. The urachus, which passed off from the front of the bladder, was impervious. On the exterior of the bladder, the right hypogastric artery passed upwards towards the umbilicus, but no left hypogastric artery was found. Near the point where the right hypogastric artery passed on to the posterior wall of the bladder, a small glandular body, half an inch long by a quarter inch broad, was seen. It consisted of a flattened central lobe, surmounted by a small lobule; a fibrous cord like a duct passed off at its lower end. A similar body occupied a like position on the left side, near the spot where the colon terminates in the bladder, as will afterwards be described. These bodies were made out to be the testes.

On searching for the *kidneys*, at first no trace of them could be found; but on carefully examining the sac or cyst "A," previously mentioned as being situated near but below the usual place of the stomach, the following conditions were observed:—This sac, placed in the left hypochondriac and lumbar regions, about four inches long and two and a half broad, contained eight ounces of serum stained with blood. It was covered exteriorly by peritoneum, and lined interiorly by a firm smooth membrane like a mucous coat. It was completely closed. On separating the peritoneal coat at the upper end, a small, pale, flattened glandular body, presenting the appearance of the supra-renal capsule, was seen. On the surface of the sac, where it lay on the posterior abdominal parietes, a flat, reddish, glandular mass was found closely applied to it, as if it formed part of the outer wall of the sac. This glandular lamina (which measured three inches by two) presented such a large number of clear serous cysts as to be almost entirely made up of them. These cysts varied in size from a pin-head to a small pea; one larger cyst had the size of a hazel-nut. From this glandular body a duct, in part pervious, and having the appearance of the ureter, passed down to the distended bladder, but did not open into it. Just below the large sac, in the wall of which this glandular mass was embedded, and placed between it and the enlarged urinary bladder, was a smaller cyst or sac ("B"), about two inches in diameter, similar entirely to the larger sac, and, like it, completely closed.

There could, we think, be no doubt that the glandular mass just described consisted of the kidney degenerated into cysts; the large sac "A" was either a cyst greatly larger than the others, or perhaps a distended pelvis of the kidney, although the ureter could not be traced to it. The smaller sac, "B," may probably represent a distended ureter, obstructed at both ends. These parts just described being all situated on the left side of the abdomen, search was made on the right side for similar organs. A supra-renal capsule was readily found, similar to the one already described as surmounting sac "A;" it was placed on the right of the vena cava, just below the liver. But no trace of a kidney could be discovered on this side, so that the question arises whether the flat glandular cystic mass above described represents the left kidney only, the right one being absent, or whether it stands for both kidneys joined together. If the sac "B" be assumed to be a ureter, the latter supposition would be the more probable.

Intestinal Canal.—The œsophagus was pervious, though small, but ended inferiorly in a thin impervious cord. This cord was continuous with a somewhat dilated portion of the intestinal tube, measuring three-eighths of an inch across, which represented the stomach, and was continuous with the duodenum. Its cavity contained a little mucus. In the fold of peritoneum by which this abortive stomach was attached there was a well-developed spleen. The duodenum was continuous with the small intestines, which were pervious, contained mucus, and were attached by mesentery in the usual way. They had been displaced upwards, backwards, and to the right side of the abdomen by the large bladder. The cæcum with the vermiform appendix, was placed on the right side, somewhat above its normal position. The colon was distended with dark green meconium, forming a rather large tube of three-fourths of an inch in diameter. It passed from the cæcum upwards, and curving across the front of the spine, ended in a *cul de sac*, attached to the outer surface of the bladder posteriorly, superiorly, and to the left. A probe, after some manipulation, was made to pass from the end of the colon into the interior of the bladder by an opening of the size of a pin's head. Although this opening was probably pervious, yet, from its oblique valvular course, no meconium had passed from the colon into the bladder. There was no trace of rectum.

The liver was completely flattened out against the diaphragm; a narrow process extended from its left lobe. The pancreas was small, long, and narrow.

Thoracic Cavity.—The thorax was so completely pushed upwards, that the sternum passed nearly straight forwards from the neck. In consequence, the thoracic cavity was flattened horizontally, presenting an upper costal and a lower diaphragmatic wall. The heart, placed between these, was well developed, enclosed in its pericardium, and surmounted by the thymus gland. The lungs, small and unexpanded, lay each in its respective pleural cavity. The third, fourth, and fifth costal cartilages of the left side were joined by bridges of cartilage.

The head was not opened.

Remarks.—Without entering at length on the peculiar points of interest presented by the specimen just described, it is proper to observe that, so far as we know, it differs in a most important respect from the cases of distended bladder or Cystectasis described by Depaul (Gaz. Hebd. 1860), Hecker (Klinik d. Geburtskunde), and others. In their cases, the ureters were open, and the kidneys of healthy structure, so that the distention of the bladder was due to retention of the urinary secretion. But in the fœtus just described, the ureters were obstructed or wanting, and the kidneys completely degenerated. It is unfortunate that the fluid contained in the bladder was not procurable for examination, so that its nature is unknown. But that fluid, accumulated in such large quantity, must either have been the result of secretion by the kidney before the ureters were obstructed or obliterated, and before the kidney structure became degenerated into cysts; or it must have been the result of secretion from the lining mucous membrane. The former of these suppositions is the more probable. At all events, as an example of urinary bladder enormously distended with fluid, occurring with obstructed ureters, and cystic destruction of the kidneys, the case is probably unique.

Dr Duncan remarked that this account possessed great interest, and shed quite a novel light on the physiology of such cases. He then said, that he was happy to be able, in addition to the remarkable and very complete report of the dissection of Dr Carmichael's fœtus, which he had just read from the pen of Professor Sanders, to read an account of a somewhat similar and very interesting case which occurred in the practice of Dr Bruce. This gentleman had been good enough to favour him with a report of the obstetrical history of the woman, and to present him with the parts, which, at a hurried post-mortem, he had been able to carry off and preserve. These parts Dr Duncan had submitted to Dr Pettigrew, whose report of his examination of them Dr Duncan would now also give.

XV. DR BRUCE'S NOTES OF HIS CASE OF LABOUR IMPEDED BY DISTENTION OF THE ABDOMEN OF THE FŒTUS.

Mrs C. delivered, 28th September 1860, of a male child at the seventh month; first pregnancy. Head required some assistance to extract, after which no progress. Child being dead, employed moderate and then strong traction, until at last the neck gave way; the arms were then laid hold of; but still the abdomen being too large to allow delivery, rupture of the walls took place, much fluid was evacuated, and the child was easily extracted. The contents consisted of a clear fluid. Could not get leave to take away the child.

The same patient had an abortion some time after this; then, on 12th December 1861, was delivered of a female child at the full time. Here, again, the head was expelled very slowly, and the further progress was still so slow that although great extractive force was employed through the head at every pain, it was a considerable time before delivery could be completed. The cause of the delay was enlargement of the abdomen, just as in her first case. Could not get permission to take away the child, but was allowed to open the body, and found the peritoneum to be distended by a clear serous-looking fluid. The bladder also was greatly distended with a fluid very similar in appearance to that which was contained in the peritoneum; its coats were also much thickened. The intestines were of very small diameter.

Report of Dissection by Dr Pettigrew.

Measurements of Bladder, etc., of Fœtus.—Bladder, when filled with water, contains sixteen ounces; circumference, when measured from above downwards or vertically, thirteen inches; circumference, when measured transversely, eleven and a half inches. The bladder is furnished with a smooth mucous lining internally; its walls are about the thickness of an adult bladder, muscular, and uniform, *i.e.*, they are not thin in one part and thick in another. The ureters have been cut short in removing the bladder. The right ureter is patent and slightly dilated, but does not open into the bladder; the left ureter is patent, normal as to size, and opens into the bladder in the usual manner. The meatus urinarius was partly cut through; it is, however, patent and well defined. The vagina was also cut through. That portion of the vagina which remained displays beautiful transverse rugæ, and conducts to a small but well-formed uterus. The uterus has a well-defined os, and a probe may be passed to the fundus. I find Fallopian tubes, but no distinct ovaries.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXIX.—MEETING IX.

Wednesday, 23d March 1870.—Dr BELL, *President*, in the Chair.

James Cumming, M.B., C.M., was admitted as an Ordinary Fellow of the Society.

Dr Cordes of Paris exhibited the following OBSTETRICAL INSTRUMENTS used in France:—1*st*, Forceps, invented by Chassagny of Lyons; 2*d*, a Dilator for the Cervix Uteri; 3*d*, Pajot's Crotchet; 4*th*, a Perforator; and, 5*th*, a Cephalotribe. *Dr Cordes* made some remarks in explanation of the various instruments shown, and received from the President the thanks of the meeting.

II. *Mr G. Stevenson Smith* showed some specimens of MEDICATED BON-BONS, prepared by Mr Tod, chemist, Canonmills. They are very palatable, and well suited for administering medicine to young children.

III. REMARKS ON PELVIC PERITONITIS AND PELVIC CELLULITIS, WITH ILLUSTRATIVE CASES. BY DR AITKEN.

This paper will be found in the April number of the Journal, vol. xv. p. 888.

Dr Keiller said he approved of the old names of pelvic peritonitis and cellulitis, which he believed were more expressive than the new ones introduced by Dr Duncan.

Dr Young mentioned a case in which inflammation had been set up by the introduction of a tangle tent. The tent was left in for seven hours, and great pain was caused, the peritonitis came on, and, after a severe illness, the patient recovered.

Dr Burn said that intrauterine pessaries and sponge tents sometimes caused much mischief.

Dr Keiller had a case some time ago, where, after dilating the cervix by a sponge tent, peritonitis came on and proved fatal. Dr Aitken speaks of abscesses occurring external to the peritoneum. Now, he was of opinion that cellulitis ought to be described as of two varieties, pelvic and abdominal, as pointed out by Dr Bell. He had at present under his care a case in which the pus was poured into the bladder and discharged with the urine. Another case he had met with in the Infirmary, which proved fatal on account of the matter bursting into the peritoneal cavity. It is best when the matter is evacuated by the vagina.

One of the instruments shown by Dr Cordes as Chassagny's dilator was very like one he had himself shown to the Society some years ago for introducing tangle or sponge tents into the neck of the womb. It did not answer the purpose, however, but in fact it was not required. The india-rubber bag attached to Chassagny's instrument is too small.

Dr Bell was of opinion that it was best to distend the india-rubber bag with air, for if water were used the weight might cause the bag to slip out of its place.

SESSION XXIX.—MEETING X.

13th April 1870.—Dr Bell, *President*, in the Chair.

I. *Dr Pattison* exhibited a box of STEEL SNAPS, prepared by Mr Robertson, Broughton Street, containing four grains each of the carbonate of iron. He had used them largely, and found that it was a most agreeable way of administering iron, especially to the young.

II. *Dr Dickson* exhibited a series of PHOTOGRAPHS OF SUPERNUMERARY DIGITS.

III. CASE OF MENSTRUATION DURING PREGNANCY.

BY MR BALFOUR.

Mrs W., aged 46 years, has had twelve children, and all were natural labours. She was quite regular up to May last, but the discharge was always very great, and continued more than three days. In July the breasts were very large and hard, as also the glands in the axillæ, and there was so much pain in attempting to work that she had to give it up for some weeks. After this she altered every Saturday for about six weeks; which led her and others to suppose that a change of life was coming on, and which was farther confirmed by her ceasing to menstruate for three months. It then returned on the 26th of every month with considerable discharge, lasting for three days, and this continued until the birth of a female child on the 25th of February, after a natural labour, with the placenta attached to near the fundus of the uterus. The child weighed ten and a half pounds, and was quite healthy. The mother made a good recovery.

IV. THE PRODUCTION OF PRESENTATION OF THE FACE.

BY DR MATTHEWS DUNCAN.

See this paper in May number of the Journal, vol. xv. p. 971.

Dr Pattison said that in a thousand cases he had met with only two face presentations.

Dr Burn had met with a number of face presentations in his practice, but few comparatively. In such cases he usually found that the fœtal head was small, so that almost invariably he was able to pass his fingers over the ear, and thus rectify the position. Face presentations are difficult to diagnose till the head is well into the pelvis.

Dr Gordon asked Dr Duncan whether it was possible to change the position after it was diagnosed. He had met with only one case.

Dr Duncan said he had no great experience in changing the position.

Dr Bell called attention to the fact that Naegelé believed that face presentations were most frequent in the first position.

Dr Keiller believed that face cases were more common in multiparous than in primiparous women; the abdominal walls being more lax in the former allowed the uterus to roll about. In his own experience face cases were rare.

Dr Milne used to think that a hitching of the occiput was the cause of brow presentations, but further experience had failed to confirm this notion.

Part Fourth.

PERISCOPE.

SURGERY.

Wound from a Pistol-shot, with Destruction of the Floor of the Mouth and Lower Lip, Fracture of the Lower Jaw, with Loss of Substance, successfully treated by two successive Autoplastic Operations, by Dr Creus.—A young man, aged 29, was admitted into the hospital 3d September 1869, stating he had, six months previously, received a pistol-shot in the supra-hyoid region. The destruction of the region was enormous, laying bare the integuments for a considerable distance, fracturing the lower jaw in the centre, carrying away nearly all the lower lip, but not wounding the tongue, upper jaw, or lip. Cicatrization had followed without excessive inflammation.

On examination, an orifice was found freely communicating with the mouth, through which the saliva constantly flowed. Hard cicatrices surrounded this orifice, which had a diameter of three centimetres, and they united the buccal mucous membrane with the external skin. Then four other cicatrices diverged, two nearly parallel with the os hyoides, another along the edge of the jaw, and the fourth vertically over the chin, terminating in the form of a V, representing the remains of the lower lip. All these cicatrices were hard and rigid; they covered the fractured extremities of the jaw, which were not united, but movable; the bone corresponding to the two left incisors was wanting, and the anterior portion of the right half of the jaw showed through the cleft in the lower lip, displaying the incisors and canine. No vestige remained of the frenum of the tongue, which protruded through the cleft, the extremity resting on the thyroid cartilage. The patient spoke with great difficulty, and was also greatly hindered in masticating and swallowing his food, which he could only accomplish by replacing the tongue and holding a compress over the aperture.

The difficulties to be contended with were the cleft in the lip, the perforation, and the loss of substance of the jaw-bone. The degree of the latter forbade an attempt to reset and unite the extremities, and it was decided only to endeavour to restore the soft parts.

The first operation.—The patient was laid on his back as if for tracheotomy, the head being supported by pillows, and was kept during the whole operation well under the influence of chloroform.

An incision was made, commencing immediately below the symphysis menti, carried round the perforation on each side, terminating in a downward vertical direction about the thyroid cartilage. From this point two other horizontal incisions were carried along the external mastoid (biventer maxillæ). The mucous membrane was dissected from the skin and its subjacent integuments to the extent of 1½ centimetre, as was done with the quadrilateral side flaps; the superficial aponeurosis serving to regulate the depth, as did the external mastoid and jugular outwards, and the jaw above, as far as the angle, laying bare the faciales, passing in front of the masseter on each side, and tying six branches. The dissection of the flaps was more troublesome on the level of the cicatrix around the perforation. The wound was united in two divisions. In the first, a suture, passing alternately in and out, about a centimetre from the edge, was put all around the dissected mucous membrane.

When the seam was completed, the two ends of the thread were drawn so as to bring the edges together like the mouth of a purse, and fastened by a double knot. It was not found possible thereby to obliterate the aperture on account of the enormous loss of substance, but it was so much diminished that the tongue no longer touched the superficial suture, and a raw surface was drawn down, which corresponded with the mucous membrane on which the deep-lying flesh could rest and soon unite with it, increasing the solidity of the new-formed floor of the mouth.

The second division consisted in bringing together in the median line the two flaps, so as to have one vertical incision in the higher and posterior parts below the angles of the jaw reunited by means of annular sutures to avoid tension. The two horizontal incisions remained ununited, and the ends of the ligatures hung out of them. Strips of plaster were also applied to bring together and support the flaps, which were covered with a compress to keep them in contact with the underlying integuments, and this was again held in place by two other plaster strips.

The patient was placed on his side to allow the saliva to flow from the commissure of the lips; small bits of ice being given him at frequent intervals through the night. There was little reaction; the saliva flowed freely from the commissure of the lips. By the end of the week the vertical cicatrix was healed, and at the end of the second week the cicatrization was complete at all points.

Second operation, 2d October.—The patient was put under the influence of chloroform, producing complete anæsthesia during the whole forming and dissection of the flaps, the situations of which were marked with ink. Incisions were made with a bistoury 12 millimetres from the median line, and, from the cicatrized edge corresponding with the point occupied by the lip, one was made slightly oblique and downwards to the lower edge of the jaw.

From this point was carried another less convex, 5½ centimetres long, ending over the corpus maxillæ 2 centimetres above the inferior edge of this bone.

Both flaps were dissected, tying an artery on each side, and forming in the median line an intact portion of about 25 centimetres in width and as many in height, and whose superior edge was entirely horizontal, all excess being removed. The upper edge of both flaps destined to form that of the lip was very irregular, and formed of cicatrized tissue, as that which corresponded to the loss of substance; the mucous membrane was dissected to use as much of it as possible. These two flaps were brought together exactly in the median line, their contiguous edges corresponding to the first incision, and were united by means of four needles and silk threads, the interior part of its inferior edge corresponding with and over the upper portion of the chin, which had remained adherent to the bone, and to which both were fastened by two other needles. The inner extremity, the inferior wounds, were united by two sutures placed obliquely so as to draw the flaps towards the centre; and, lastly, the mucous membrane was united in the median line by two others, and the skin on both sides to form the free edge with two other points in each.

Thus the lip was easily formed, with a resulting triangular space of lost substance on each side of the chin above the jaw. Strips of plaster and a compress with cerate was applied as in the first operation. A cooling regimen was ordered.

By the sixth day all the wounds were united; the ligatures came away gradually; and by the thirteenth the superficial triangular denuded spaces were nearly healed. The patient was soon able to masticate his food; the loss of substance from the jaw-bone no longer gave rise to abnormal motion; the only defect experienced arose from the loss of the motor muscles of the tongue.—*Gaceta Medica de Granada.*

NOTE ON A CASE OF PAPILLIFORM POLYPUS OF THE RECTUM. By DR E. TACHARD.—Under the above heading are detailed, at great length, the particulars of a case certainly of great rarity. We give merely a short abstract.

H., æt. 35, was admitted into hospital for a diarrhœa, which was always accompanied with hæmorrhage. The belly was tender, constantly painful, retracted, and pressure in the left flank caused extraordinary suffering. Appetite gone; slight fever. It was not a mere case of dysentery, and there was a localized peritonitis in the left flank. Under treatment the symptoms improved, and a tumour was indistinctly made out at the seat of pain. The diarrhœa persisted, always bloody, and quite unaffected by any treatment. Solid food of any kind produced in ten hours the severest pain in the belly, and the patient was reduced to milk and eggs as his only articles of diet.

Examination by the rectum gave only negative results, there being nothing whatever unusual to be felt. He went home for a time, but soon returned in a much worse state than before. He was thin, and his skin was dry and of an earthy colour; his appetite was quite gone. He had symptoms of pulmonary phthisis. The diarrhœa was as bad as ever, and now he had tenesmus, and burning pain whenever the bowels acted. In two months more he died, exhausted.

The lungs were found full of tubercles. Nothing very remarkable was noticed regarding the other organs till the kidneys were examined; the pelvis of the left kidney contained numerous calculi of uric acid. The intestines were very much thinned, and the mesenteric glands were enlarged and tuberculous. In the left flank a bundle of matted intestines was found, consisting of ileum, ureter, and rectum, matted together by adhesions. In the upper part of the rectum, the walls of which were greatly hypertrophied, a large number of tumours, almost entirely closing the canal, were found. They were rounded, red in colour like strawberries, mostly pediculated, varying in size from a bean to a very large chestnut. They existed over about three inches of the circumference of the rectum. Some of the larger ones were sessile. On section they were seen to be of spongy texture, very rich in bloodvessels, and to be covered by papillæ, resembling those of the intestinal mucous membrane. A deeper section showed numerous cul-de-sacs, containing cylindrical cells.—*Gazette des Hôpitaux*, No. 54, 1870.

CHANGES PRODUCED IN THE BLOOD BY EXTENSIVE BURNS, EXPLAINING PULMONARY COMPLICATONS. By DR FELTZ, Pathologist at Strasbourg.—In 1867, I showed experimentally, in a work entitled *Etudes des Embolies Capillaries*, that in severe burns there were important changes in the vessels in the neighbourhood, and also in the great vessels, but in the latter only as the result of transmission, and in them the changes were only here and there. If hæmorrhagic deposits, more or less numerous, are found in the lungs, there can be little doubt that these are due to the coagulated masses found in the pulmonary veins. In 1861, Dr Wilks had pointed out how frequently, in children who had been extensively burnt, death was due to pulmonary complications, though at times due to shock to the nervous system or to tetanus. He pointed out that complications, analogous to those found in purulent absorption or pyæmia, were present. In the vessels he showed deposits of fibrine more or less completely decolorized, in organs the frequent existence of hæmorrhagic spots resembling those found in purpura.

Wilks did not point out the relation between the pulmonary morbid phenomena and the lesions in central organs. The factor which he did not recognise I find in the capillary embolisms. This manner of death after burns is also found to follow extensive congelations. Michel (of Strasbourg) has recorded a case in which pulmonary embolisms were explained by the transmission of altered blood from superficial frostbite.

In 1868, M. Gustave Wertheim published interesting observations on this subject. According to him, the lesions observed in the organs after local burns or congelations, such as duodenal ulcers, hepatic, pulmonary, and renal hæmorrhages, and even cerebral lesions, are the result of embolisms starting from the locally-injured parts.

The following case affords in its autopsy most convincing results as to the mechanism of the pulmonary complications of an extensive burn.

W., æt. 22, robust and strong, fell into a vessel of boiling water. His arms, legs, and back were fearfully burned, the cuticle being raised, and here and there separated in enormous blisters, and the exposed skin much reddened. He was admitted in great agony, shivering constantly, and complaining of intense cold. Lotions of chlorate of potash and a free use of opium relieved the symptoms. During the night vomiting and delirium came on, with difficulty of breathing. Next day he was sensible for some hours; but in the afternoon coma came on, with great difficulty of breathing, and he died at midnight.

Post-mortem.—The cuticle was nearly completely separated from both legs. The capillaries of the skin appeared black, and numerous purulent specks were visible in their vicinity. The blood in the small veins consisted mainly of debris of corpuscles, altered in shape and size, and frequent small black clots. The lungs were full of small black apoplectic spots, and careful examination of the blood composing them showed changes in each precisely similar to those already described in the peripheral veins. Had death not been so rapid, doubtless these deposits would have become purulent.—*Gazette des Hôpitaux*, No. 58, 1870.

MEDICINE.

ON THE USE OF MUSTARD IN HICCUP.—In the *Siglio Medico*, Dr Jauariz reports a curious case of obstinate hiccup cured by the internal administration of an infusion of mustard. A Spanish physician was seized, while convalescing from a gastric fever, with obstinate hiccup, which gave him no rest. For sixty hours, the patient was treated with antispasmodics, narcotics, ipecacuahana, and revulsives, without effect. He then besought his wife to give him some linseed tea—she by mistake gave him an infusion of mustard. Of this the patient drank a cupful at once, and was surprised to find his hiccup cease, not to return. This physician profited by the lucky mistake of his wife, and subsequently treated with success many obstinate cases of hiccup. The dose which he employed was one teaspoonful to four ounces of boiling water. The author of the article in the *Siglio* had also successfully employed the infusion of mustard in three cases of obstinate hiccup which had already lasted many days. In the *Gazette Medico-Chirurgicale de Toulouse*, a case is related of a governess who had been treated for hiccup during twenty days with every variety of antispasmodic—ether, belladonna, valerian, etc.; laudanum was the only thing which gave any relief, and enabled the patient to retain some nourishment. At last, recourse was had to the infusion of mustard: one teaspoonful of flour of mustard was infused for twenty minutes in about half a pint (250 grammes) of boiling water, it was then filtered, and given to the patient, who swallowed it at one draught. The troublesome affection ceased at once and never returned. Cases of obstinate hiccup are sufficiently frequent and intractable to make practitioners grateful to us for pointing out to them a remedy so efficacious and so handy as infusion of mustard seems to be.—*Revue de Therapeutique Medico-Chirurgicale*, 1st June 1870. [Of many obstinate cases of hiccup we have never seen one cured: they all wore themselves out. We are aware that this was also the experience of one of the most widely-employed consulting physicians of recent days. At the same time, obstinate hiccup, in certain circumstances, and under certain conditions, is readily produced by local irritants: a piece of dry bread will often bring it on; and there is no reason why such a merely local stimulant as mustard should not prove curative. We recommend its employment to our professional brethren.]

ON THE EMPLOYMENT OF CARBOLIC ACID IN VARIOLA.—M. Goderoy, Professor of Midwifery at Rennes, has recently employed carbolic acid in three cases of variola; he employed it both externally and internally. Internally, one part of carbolic acid was added to one hundred and twenty-five of dilute mucilage (*potion gommeuse*), and a teaspoonful given every two hours; externally, the surface of the body was sponged every hour with a solution of one part of carbolic acid in five hundred of water. Beef-tea (*potages*) was the sole nutriment allowed; and the result in all the three cases was sufficiently encouraging; in all there was neither suppuration of the pustules nor secondary fever. One was an adult, unvaccinated; another a young man of seventeen, successfully vaccinated in his youth; and the third, an infant of eighteen months. The latter was the only one who had any difficulty in taking the potion; in her the smallpox commenced in the beginning of May, and all the pustules were dried up by the 12th of May.—*Revue de Therapeutique Medico-Chirurgicale*, June 15, 1870.

Part Fifth.

MEDICAL NEWS.

THE LECTURES ON MIDWIFERY by Dr Matthews Duncan and Dr Keiller have been recognised by the Edinburgh University Court as qualifying for graduation.

THE Royal assent having been given to the EDINBURGH INFIRMARY ACT, the Acting Committee of Contributors have resolved to hand over to the Managers of the Royal Infirmary the moneys already subscribed, which amount, we believe, to about £160,000.

THE MEDICAL BILL, in its mutilated form, has already passed the House of Lords, and is running the gauntlet through the Commons, where we hope Dr Lush will manage to check its career. No Medical Bill can be of any permanent service either to the profession or the public which does not provide one uniform entrance qualification, and the adequate representation of the registered medical practitioners in the Medical Council.

ELECTION OF PROFESSOR OF MIDWIFERY.—On the 4th of July, the Curators of the Edinburgh University, by a majority of four to three, elected Dr Alexander Ross Simpson Professor of Midwifery, in the room of the deceased Sir James Young Simpson.

SURGEONS' HALL AND THE LADY STUDENTS.—At a meeting of the lecturers of Surgeons' Hall on Thursday, the following resolutions were passed, on the motion of Dr Arthur Gamgee, seconded by Dr Macadam:—" 1. That it is expedient that lecturers in this medical school should be free to lecture to female as well as to male students. 2. That no restrictions be imposed upon lecturers as to the manner in which instruction is to be imparted to women." The lecturers were authorized to make what arrangements they considered desirable to carry out these resolutions, either by separate class or in mixed classes.—*Scotsman*, July 9.

EDINBURGH OBSTETRICAL SOCIETY DINNER.—On Friday (15th) evening, Dr R. Peel Ritchie, Senior Secretary to the Society, was entertained at dinner in Kennedy's Hotel, 8 Princes Street, by the Society, when he was presented with a handsome timepiece, in recognition of his valuable services in connexion with the editing of the Society's " Transactions." Dr Charles Bell, President, occupied the chair; and Dr Menzies, Vice-President, acted as croupier. Dr Young read apologies for absence from Dr J. M. Duncan, Dr Moir, Dr Keiller, Professor Simpson, Dr S. Smith, Dr Cuthbert, and Dr Thomson of Dalkeith. The usual toasts were given, and the company spent a very happy evening.—*Courant*, July 18.

FORFARSHIRE MEDICAL ASSOCIATION.

THE twelfth annual meeting of this Association was held yesterday, the 7th inst., at 2 P.M., at Arbroath, in the White Hart Hotel—Dr David Arrott, President, in the chair. There were present—Drs Wannan, David Arrott, John Traill, Key, Dewar, Munro, Crichton, Anderson, Arbroath; Todd and Polson, Friockheim; Lawrence, Johnston, Officer, Howden, and H. Steele, Montrose; M'Rae, Fettercairn; Mackie, jun., and Finlay, Brechin; Paton, Letham; Arrott, Gibson, Christie, Spence, Cocks, Crockatt, Rorie, Campbell, Duncan, Dundee; Mackie, Tuke, Cupar-Fife; Duncan, Dairsie; and Professor Inglis, Aberdeen. Professor Christison of Edinburgh, and Dr George Balfour, one of the Physicians of the Edinburgh Royal Infirmary, were also present as guests. Dr Wemyss, Broughty Ferry, joined the party at dinner.

The minutes of last annual meeting and of subsequent meeting of Council were read and approved of.

Dr WANNAN proposed, and Dr DEWAR seconded, the following office-bearers for the ensuing year, viz.:—President—Dr Johnston, Montrose; Vice-Presidents—Dr Lawrence, Montrose; Dr Lyell, Dundee; Hon. Secretary—Dr Duncan, Dundee; Hon. Treasurer—Dr Campbell, Dundee; Council—Drs Arrott, Gibson, Crockatt, Pirie, Miller, and Macbain, Dundee; Local Secretaries—Dr Dewar, Arbroath; Dr Lawrence, Montrose; Dr Mackie, jun., Brechin; G. P. Alexander, Esq., Forfar.

Two interesting papers were then read—one by the President on "Notes of Cases of Scarlatina;" the other by Dr James Arrott, Dundee, on "Eruptions in the Continued Fevers of this country." An interesting and animated discussion followed the reading of these papers, in which Professor Christison, Drs Cocks, Christie, and others took part.

At 4 P.M. the members and their distinguished guests sat down to a sumptuous dinner purveyed for them by Mr Cloudesley of the White Hart—Dr D. Arrott, the President, in the chair, and Dr Wannan, Vice-President, acting as croupier.

The cloth being removed, the CHAIRMAN gave in succession the following toasts:—"The Queen;" "The Prince and Princess of Wales, and the rest of the members of the Royal Family;" "The Army, Navy, Militia, and Volunteers"—to this toast, as representing the Militia, Dr Officer very appropriately replied. He then called for a special bumper in proposing, as the next toast, "The Guests, Professor Christison and Dr George Balfour." It had been said that auld St Thomas, the patron saint of their Monastery, was "gude to strangers," and in keeping with this sentiment they this day bade hearty welcome to the distinguished guests who had kindly accepted their invitation, and now honoured them with their presence. On the learning, ability, and high position of Professor Christison he need not dwell—these were known and appreciated, not merely in Britain and the Continent, but throughout the world; and to his long and eminent services the medical profession and mankind at large were greatly indebted. Of Dr Balfour he could say nothing higher than that, judging from what he had already done, he bade fair to follow in Professor Christison's steps.

Dr BALFOUR replied on behalf of himself and Professor Christison, and said how much he had been gratified by his attendance at the meeting of their Association to-day, and by the hospitable entertainment they had enjoyed.

The CHAIR—"The memory of the late Professor Syme"—received in solemn silence.

Dr CHRISTISON next proposed "Prosperity to the Forfarshire Medical Association." He said—This is the third time I have had the honour and great gratification of being the guest of this Association. Eleven years ago, in company with Professor Syme, I attended its first meeting in Dundee, when it had for its President the venerable Dr Crichton, then in his 88th year, and its Vice-President, the late Dr Arrott, sen., then in his 85th. I am exceedingly glad to meet again to-day so many who were present on that occasion, and to recognise among your younger members so many of my old pupils. I consider such meetings as the present of very high importance to the members of the medical profession. By the intercourse thus enjoyed the wits are sharpened, and mutual good-will and esteem promoted; and they afford an opportunity of making most valuable additions to the general store of professional knowledge. It were easy to enlarge on the many advantages of such friendly reunions, but I shall simply wish continued and increasing prosperity to the Forfarshire Medical Association. (Applause.)

The CHAIRMAN returned thanks.

"The University of Edinburgh" was proposed by Dr JAMES ARROTT, coupled with the name of Professor Christison. Dr A., in proposing this toast, took occasion to animadvert strongly on the mode of filling up the chairs in the Edinburgh University, as exemplified in the recent election to the Midwifery Chair, which had occasioned such deep and widespread dissatisfaction. And he thought the time had come for divesting Town Councillors *in toto* of all power and voice in such appointments. He was sure that the University of Edinburgh had the best wishes of this meeting for its continued celebrity and usefulness. (Cheers.)

Professor CHRISTISON, in reply, said he was not like some people who set no value on good wishes, for he thought they were not unfrequently the precursor to good luck. The evil to which Dr Arrott had alluded in the mode of filling up chairs in the Edinburgh University had, he trusted, now reached its acme; and when matters reached their worst, there was hope they would mend. He trusted some such change as had been wished for would take place soon. So long as Town Councillors have to do with these elections, motives altogether apart from the merits of the candidates will influence their conduct. When he was elected a Professor, now thirty-eight years ago, there were thirty-three Town Councillors, and he had often mentioned in private what he now stated publicly, that of those who supported him only two did so because they thought him the best man. (Hear, hear.) He was much gratified to see such affection manifested everywhere towards the Edinburgh University on the part of its former pupils and graduates, and he was sure, from what he had observed to-day, this feeling existed as strongly in Forfarshire as in any other part of the country. (Applause.)

Professor **Inglis**, of Aberdeen, in an excellent speech, gave "The Infirmaries of Forfarshire," which was acknowledged by Dr Wannan.

Dr **Lawrence** gave "The Medical Press," coupled with the name of Dr George Balfour, editor of the *Edinburgh Medical Journal.* He dwelt at some length on the various ways in which the medical press was serviceable to the profession. He remarked—We are justly proud of our great medical schools and our magnificent hospitals; but we know how much these owe both their fame and their usefulness to the medical press. Then, what would our medical societies be without the aid and co-operation of the same agency? The recondite researches and ingenious speculations of learned leisure, and the ripe fruit of clinical experience, communicated in the first instance to select circles, are, by means of the press, speedily made the property of every member of the profession both in our own and other lands. Through the medium of the press we may all hold, more or less, intercourse with one another, and even become intimately acquainted with many we have never seen. On every ground the medical press of our country was well entitled to our esteem, support, and gratitude.

Dr **Balfour**, in reply, dwelt on the great advantages of the medical press, and urged the members of the Association more frequently to make known through the pages of the press the results of their ever-increasing experience.

Other toasts were—"The Officers of the Ayslums of Forfarshire and Fife," coupled with the names of Drs Howden and Tuke. Dr Howden replied. "The New Members," by Dr Paton, Letham; "The Memory of the late Dr Guthrie," by Dr James Arrott; "The Town and Trade of Arbroath," Dr Christie, acknowledged by Dr Traill; and "The President Elect," by Dr Gibson, acknowledged by Dr Johnston.

A most pleasant and enjoyable evening was spent, and in separating all those present concurred in declaring that the twelfth anniversary of the Forfarshire Medical Association had been a great success.—*Montrose Standard*, July 8.

OBITUARY.

JAMES SYME.

DIED JUNE 26, 1870.

JAMES SYME was born in Edinburgh on 7th November 1799. His father, John Syme, of Gartmore and Lochore in Fifeshire, was at one time a writer in Edinburgh, and still retained a house in town, where James was born.

His boyhood was passed chiefly in the country, but he received his education at the High School of Edinburgh, in the building which now is used as part of the Surgical Hospital, and in which, for nearly forty years, he afterwards treated his patients.

As a boy he was fond of dissecting animals, and specially fond of chemistry. Many of his exploits in experimenting, both alone and with his lifelong friend Professor Christison, were the subjects of amusing anecdotes in his later years. He evidently turned his chemical studies to good account, for, at the age of eighteen, he had discovered a method of waterproofing cloth, which, had it been patented, might have made his fortune.

Fortunately for Surgery, however, he turned his attention to more strictly professional work. He became a pupil of Dr Barclay, with whom he laid the foundation of his knowledge of human anatomy. His medical studies must have been desultory and interrupted, so far as to mere attendance on lectures; for, curiously enough, he never attended a course of lectures on Surgery, and, when only in his nineteenth year, was intrusted with the charge of his cousin Liston's anatomical rooms.

In 1820 he for a time held the dangerous post of house-physician to the Fever Hospital; where he took fever, and narrowly escaped the fate of so many of his successors.

He took every opportunity of obtaining a practical knowledge of his profession in all its branches, and about this time, 1821, he was one of four resident clerks, who did the duty now done by eight resident physicians and surgeons in the Royal Infirmary. While there he saw much of the old practice, and it was part of his duty to bleed the patients who were supposed to need depletion. We have often heard him tell of the numbers of names he used to find entered in a special book which he had to take with him in his evening visit to the wards, and the difficulties he used sometimes to have in obtaining the requisite number of ounces of blood from their exhausted frames. He very soon began to set his face against the indiscriminate use of that heroic remedy, which has now perhaps fallen into too great desuetude.

This must have been a busy, crowded period of student life; for, before 1822, Syme had travelled on the Continent, and obtained many valuable hints from the practice of French and German surgeons. To Professor Rust especially he was much indebted. In 1822 the whole responsibility of Liston's anatomical rooms devolved on Mr Syme; and next year, after having obtained the Fellowship of the College of Surgeons, he took up the teaching of Anatomy, which he continued for three years. In 1825 it may be said that his true career as a surgical teacher commenced, when, giving up anatomical teaching, he threw himself with all his energy into the field of Surgery.

Lizars had just published his work on the Extraction of Diseased Ovaria, and his character for boldness and originality was established. Turner and Allan were both lecturing on Surgery; the one having the advantage of his official position, and the other of his age and experience. Monro was giving an afternoon course of lectures on Surgery within the walls, as well as his anatomical course; and, above all, Liston was rapidly nearing the zenith of his fame, while between him and Syme a most unfortunate misunderstanding had arisen.

He had thus many and formidable rivals, and he had no hospital appointment, and, more than that, knew that so long as Liston was in the Infirmary, the Managers would not be likely to give him one; and, without an hospital appointment, his chance of succeeding either as a lecturer or a surgeon was very small.

So here began one of the strangest contests on record. A young, almost unknown man, with few friends, he had to make both a class and a practice, and to force himself into the Infirmary. He succeeded; and eight years of struggle against heavy odds were followed by thirty-six years of calm enjoyment of the hospital position he had so hardly won.

The history of the struggle may be briefly told. For four years he lectured on Systematic Surgery to a class which one year attained the number of 250. He wrote several papers, one especially of great importance on Incised Wounds, in 1825.

In 1829, having failed again to get into the Infirmary, he devised a plan unequalled in the boldness and self-confidence it displayed. He started a private hospital. He hired Minto House, with fifteen rooms, near the University and the Infirmary, at a high rent. He put in it 24 beds, opened an out-patient department, and trusted to himself for its support. His plans were carefully laid; his accounts kept as a thorough business man. So much was to be obtained from pupils' fees, so much from the young men that were to pay for being allowed to be house-surgeons, so much (not very much) was to be trusted to the liberality of the public, and so much was to come out of Mr Syme's own pocket. His calculations came nearly right. In two days ten young men applied for the house-surgeoncy, though £100 a year was required as board. Several patients appeared the first day the hospital was opened (the first patient still survives);

and for four years the remarkable sight was to be seen of an hospital, the support of which depended almost entirely on the shoulders of a young man of thirty, but which vied with the Royal Infirmary in the number and interest of its operations. About this same time this self-reliant young man married, and started his carriage.

Good surgical cases seem to have been more numerous then than they are now, for it is difficult otherwise to explain the great number of excellent operation cases which Mr Syme got even in his first year at Minto House. The report for the first year tells of 1900 outdoor cases, 265 indoor, and 95 operations. During the four years of his occupation of Minto House, Mr Syme published ten reports in the Edinburgh Medical Journal, at first quarterly, afterwards half-yearly.

These reports contain a large amount of most valuable information, and well repay perusal, even after the lapse of forty years. One gives an admirable description of the principles on which blistering and strapping cure indolent ulcers; another describes the long splint and its uses, and gives a case of exfoliation from the pelvis, the first of the series of such cases which afterwards were so well known. Others contain cases illustrative of the use of the actual cautery in diseases of joints and bones; the observations on the reunion of bone in fracture; on fibrous polypus; cases of trephining, including one in which he successfully trephined a cerebral abscess for epilepsy. The last describes the first case of division of the sterno-mastoid for wry neck in this country. By the time the tenth report was published, the battle was won. The heavy expenses of the hospital were met by the numbers of large apprentice-fees which flowed in, as the splendid opportunities for learning surgery the hospital afforded became known. When Russell resigned the clinical chair, and Mr Syme succeeded him, the Managers could no longer refuse him admittance to the Infirmary, as the Senatus had given him leave to give his clinical lectures at Minto House, and removed any restriction as to the number of his pupils there; and thus, by still keeping him out, the Infirmary would have lost not only patients, but the income derived from the pupils' tickets; so, in 1833, he at last got into the house, where for the next thirty-six years he was to be so useful and honoured.

Here may be said to have ended his time of struggle, for though many a tough battle still remained to be fought, and a few vicissitudes had to be recorded, there was no longer any doubt as to his position, his success as a teacher and a practitioner was secure, and in the happy calm of a perpetual hospital appointment he had nothing to fear in the future. Next year his great rival, Liston, left for London; and thus by far the greater share of the operative surgery of Scotland fell into Mr Syme's hands.

During all the labours and cares of the Minto House period, Mr Syme's pen had not been idle, for, in 1831, he published his valuable treatise on the "Excision of Diseased Joints;" and, in 1832, the first edition of his "Principles of Surgery." In the first of these works we have the earliest and by far the most important systematic attempt to show how excision ought, in nearly every case, to supersede amputation. Notwithstanding the marvellous results of the operations performed by the Moreaus, father and son, of Bar-sur-Ornain, in France, in the end of the eighteenth and beginning of the nineteenth century, only a few isolated cases of excision by Park, Filkin, Antony White, and others, had been performed in this country; so we can hardly realize the change that forty years has seen. Mr Syme strongly recommended excision of the elbow and shoulder, and described two cases in which he excised the knee; and though, since his day, hip, ankle, and wrist have all been often excised, still elbow, shoulder, and knee are the joints most suitable for the operation, and which give the most satisfactory results. We can hardly estimate too highly the influence which Syme's teaching has had in substituting excision for amputation; if he had done nothing else, he would have been one of the greatest benefactors to the human race.

Syme's "Principles of Surgery" is also in many respects a very remarkable book.

Firstly, The fifth and last edition is smaller than the first.

Secondly, It is very brief; not an unnecessary word is inserted. The whole object of the book is to give only what information is needed, in as few and as simple words as possible. It reminds one of Mr Syme's lectures, in which his only object seemed to be to give the maximum of instruction in the minimum of words.

Thirdly, It is written in plain, simple English, and contains not a slovenly phrase or an ill-constructed sentence.

Fourthly, It encourages the reader to think and reason for himself, and shows how the treatment of the infinite varieties of disease is all based on a few broad and safe principles, and thus escapes the snare of burdening the memory with masses of antiquated quotation, or crude novelties of treatment. Hence its wonderful popularity and freshness. It is old, but not stale. Syme might have put on its title-page the motto lately used by one of his most distinguished pupils,—

> "Non hypotheses condo, non opiniones vendito,
> Quod vidi, scripsi.

Syme was not a voluminous writer. His contributions to the journals were numerous, but short; and his works were small, and few in number, compared with those of most of his compeers. The following are the chief of his separate works in their order:—

His "Researches on the Function and Powers of the Periosteum" were published in March 1837. These have been quoted by nearly all writers on the subject since as observations of great importance.

His work on "Diseases of the Rectum" was published in 1838. Though very brief, it was for a long time a standard work on the subject, and did much to withdraw this important class of diseases from the hands of advertising quacks.

In the end of 1847, he collected and published a volume of "Contributions to the Pathology and Practice of Surgery," well known, and now, we believe, out of print.

In this work is given the collected accounts of the first eight cases of amputations at the ankle-joint, an operation entirely and unmistakably new, quite his own, and which, in perfection of principle, applicability, and success, is unrivalled. On this one achievement alone, Mr Syme might have based his reputation as one of the greatest surgeons that ever lived. To substitute for amputation below the knee, the only remedy in that day for disease of the tarsus, an amputation which removed all the disease, but saved the whole leg, which gave a stump on which the patient could rest the entire weight of the body, and was less fatal than any other amputation, even than amputation at the wrist—was a feat of which he might well be proud. It is impossible to estimate the number of legs which have been saved, and, as an arithmetical sequence, the number of lives which have been spared, as the result of this operation. We can scarcely wonder that sometimes Mr Syme was indignant at the attempt, more or less successful, of other surgeons to associate their names with this amputation by the invention of *modifications*, which, as a rule, were the less successful the further they deviated from Mr Syme's original method. The date of his first case is important, 8th Sept. 1842. His second case was Professor George Wilson, whose own account of the operation and its result is so well known. That only eight cases should have presented themselves suitable for amputation at the ankle-joint in the five years between 1842 and 1847 is remarkable, when contrasted with the very large number which have been operated on by Mr Syme and his colleagues in Edinburgh during later years. The whole work is characterized by Mr Syme's usual terseness, vigour, and accuracy; and it is remarkable, in looking over it, to see how very little there is in it that would need to be modified or corrected, even after the lapse of more than twenty years.

At this period occurred that most remarkable episode in Syme's life—his exodus to London, and his rapid return from it. When Liston died in the zenith of his fame, the authorities of University College looked northwards for a successor. Syme's old friend, Sharpey, then, as now, one of the chief professors of University College, did what he could to persuade him to go to London; and on 13th Feb. 1847 he went to London as Surgeon and Lecturer on Clinical Surgery to University College Hospital, with, however, the distinct understanding that he was not to be called on to teach Systematic Surgery in addition to his clinical work. He was received by the pupils with enthusiasm; and we have often heard him describe the manner in which he was able to make improvements, not only in the method of giving, but also in the manner of receiving, instruction. He commenced practice in London with energy, and with a gratifying measure of success. With the bulk of the profession in London and with the professional press, his relations do not appear to have been quite happy.

Without being ill received, or having anything tangible to complain of, he did not feel that he was cordially welcomed; and with the cheers of his old friends and pupils, who had thronged a farewell banquet, still ringing in his ears, we can believe that his earnest, warm-hearted nature felt a great blank. He found, too, that London work was hard; the streets were long, and patients far apart. He missed his quiet Edinburgh leisure and the old familiar faces, and we can believe he was not sorry when the last straw was laid on the burdened back, and the request that he should teach the drudgery of Systematic Surgery, in addition to his own clinical work, gave him a valid excuse for throwing up the ungenial position, in which he had never fairly taken root, and returning to his old quarters. This he did in July, barely four months after his departure. His going to London was a bold step; his coming back again even bolder; but his rapid decision was rewarded by his stepping at once into his old position. That he had lost none of the respect of the profession was shown by his election in 1848 to the president's chair of the Medico-Chirurgical Society. This is one of the very few honours which the profession have to bestow, and generally has the effect of stimulating the holder of the office to extra work. Accordingly, we find that he not only gave an address, but also exhibited many morbid specimens to the Society; and published many cases in the Medical Journals, as well as his work on "Stricture of the Urethra." This work, describing and enforcing the operation known as Syme's Operation for Stricture, excited much comment—some very bitter—resulting in legal proceedings.

Between 1850 and 1855, Mr Syme, in addition to his practice and teaching, took much interest in medical reform, which he continued to the last, and wrote much regarding it. He also had a good many controversies in hand, lawsuits, discussions as to wards, etc., and consequently those years were, perhaps, the least fruitful of all his useful life.

The next ten years were busy and well filled, and especially notable as including within them some of his most daring and brilliant operations. The series of operations for aneurisms, which for various reasons had to be treated by the old operation instead of the Hunterian, have never been surpassed for fertility of invention and boldness in execution. In 1857 he treated a traumatic aneurism of the carotid, too low for proximal ligature, by incision and ligature at the wound. In 1859 and in 1860, he boldly cut into two enormous axillary aneurisms, and tied the artery in each at the spot with success. In 1861, he treated two cases of gluteal aneurism, one by the old, the other by the Hunterian operation, both with success; and in 1862 he cut into an iliac aneurism, and tied the common, internal, and external iliac arteries.

1861 saw the publication of his "Clinical Observations;" and in 1864 he published his monograph on "Excision of the Scapula." In this decade he performed the operation of excision of the whole tongue for cancer; and in 1867 published his thirty-fifth case of ligature of the superficial femoral artery for popliteal aneurism. All his thirty-five cases were successful.

About this time university honours began to fall thickly on him. In 1867, he was greatly gratified by his visit to Dublin, when the honorary M.D. was conferred. In 1869, he was also made M.D. of Bonn, and D.C.L. of Oxford.

He was still in full work as Professor of Clinical Surgery. His practice was very large; he was busily engaged in all matters connected with medical teaching, and had for many years been one of the most influential members of the Medical Council. The spring of 1869 brought heavy domestic trial with it, and he was much overworked by the leading part he took in the controversy regarding the site of the new Infirmary. At a public meeting on this subject he made a speech, which, in vigour, terseness, point, and effective humour and sarcasm, could hardly be surpassed, and which had very great influence in gaining the "Battle of the Sites." On April 6, on his driving home from the hospital, where he had performed a small operation, he had a bad attack of hemiplegia, which left his mind unclouded. He soon recovered to a great extent, but in July resigned the chair of Clinical Surgery, which he had held for thirty-six years. During the autumn and winter he continued to see patients at his consulting rooms; but in this spring the disease returned once and again, and he died on June 26, 1870, after some weeks of weakness and weariness, borne with patience and calmness.

He was buried in St John's Episcopal Chapel, of which he had long been a member, on June 30, followed to the grave by very many of his old friends and pupils.

So far our task has been comparatively easy. The mere recording of a few salient facts in the history of a life so recently ended is not hard; but to estimate aright the work done in the world, and the mark it has made in the history of Surgery, is more difficult. We are still too much in the shadow of our great loss; we are too near the base of the mountain properly to gauge its height. When the history of our profession in the nineteenth century comes to be written by our successors in the twentieth, then, and not till then, will the full value of Syme's work and teaching be fully known. We can hardly realize the enormous progress which has been made in the principles and practice of Surgery during the fifty years which elapsed between Syme's obtaining his diploma and resigning his chair. In 1819, scarcely any joint had ever been excised—operations on the jaws were hardly known—dressings were complicated—drugs were numerous, and heroically administered. Now, so much has been changed, so much has been gained, that it is hard to see in what direction the march of progress is to tread. Syme was only one, we grant, of a band of eminent men to whom we owe much of this advance, and who raised the Edinburgh School to its present position. The Bells, Lizars, Liston, and Fergusson, all bore their part; but for various reasons Syme will, we believe, be known in the future as the representative man of that bright period of progress. His longer life—his permanent connexion with the Infirmary—the enormous influence of his teaching—his shrewd practical common sense, and his intense earnestness and directness of aim—have added a momentum and force to what he has done, which will suffice to carry his name past the mere memories of his contemporaries, and inscribe it, as with an iron pen, on the permanent records of the age.

He has been compared to Dupuytren and Cooper, but we believe he was a much greater man than either, both as an inventor and as a teacher. In his clinical teaching he himself thought his strength lay. We need not describe the method he followed; it is well known. Diagnosis, explanations of the diagnosis, execution, and subsequent remarks, were so exact, neat, and concise, as to be most eminently instructive. Had the voice been stronger and less muffled, the whole would have been perfection; as it was, it was a class that was attended "for love, not duty," by some students during the whole course of their studies, for eight or even ten sessions. Not only did he impress surgical principles on the minds of his pupils with clearness, brevity, and point, which have probably never been equalled, but he also, by precept and example, taught them honesty and simplicity. He seems to have studied Lavater's aphorism:—"He who attempts to make others believe in means which he himself despises, is a charlatan; he who makes use of more means than he knows to be necessary, is a quack; and he who ascribes to those means a greater efficiency than his own experience warrants, is an impostor." He was neither charlatan, quack, nor impostor; and it was not his fault if any of his pupils ever became either. He was absolutely free from petty trick and artifice; and if a single interview often made him be thought cold and hard, further acquaintance brought out the real kindness which his manner concealed.

Many of his pupils who have in their different spheres risen to the first rank in the profession, know how very much they owe to the high idea of professional dignity, honour, and *reticence*, which they learned from Mr Syme.

He had a way of giving important information on surgical points in little axiomatic sentences, which, once having heard, it was impossible to forget. A collection of some of these might easily be made, and would have both personal and professional value. Of simply personal interest, are such as the following "three maxims to insure success in practice":—

1. Never look surprised at *anything*.
2. Before stating your opinion of a case on your second visit, ascertain whether your previous direction has been complied with.
3. Never ask the same question twice.

Or the following classification of diseases of the ear:—

1. Curable, the province of the surgeon.
2. Incurable, those belonging to the aurist.

His pupils were very numerous—many have been very successful. He has made his mark on a whole generation of *teachers*, so that probably Syme as a teacher has done more than Syme as an operator. It is difficult to express by any description the special character and charm of Syme's method of operating. Not naturally very dexterous, not even very powerful—for the smallness of his hands, and shortness of his fingers, deprived him of leverage—his operating was entirely devoid of flourish and dash. In the use of the bone-pliers and saw, it sometimes even appeared weak and niggling. He was not very rapid, not very elegant. But, on the other hand, he was absolutely free from fuss and hurry; all idea of self, his own dexterity, his own appearance, his own comfort, were evidently banished when he took the knife into his hand. He thought of nothing but the patient, and the best—not the most rapid, nor the showiest, nor the easiest—but the *best* way of relieving him.

Having taken up his position by the table, he rarely moved from it, standing quietly, with very little movement even of back and shoulders, working almost exclusively with wrist and elbow; consequently his assistants could also stand quietly, and were thus more efficient. His imperturbable coolness was contagious, and thus he was generally well assisted; without noise, with hardly a word said on either side, he got the instruments he required when he wanted them. No one could be gentler, less exacting, or more easily satisfied; and probably no surgeon ever was so simple in his tastes and requirements as to instruments. Provided his knife was sharp, and the bone-pliers large enough, he would ask no more. He had a pet aneurism-needle, which he used in all his great operations on the arteries, and he generally brought his own lithotomy-knives and forceps; but for all his other operations, the limited resources of the Infirmary press were quite sufficient. He always knew beforehand what he meant to do, which is a great assistance in doing anything great, and had the determination not to leave off till he had done it. Now and then we have seen him suddenly change the whole plan of an operation in the very act of its performance; but we have hardly ever seen him change his purpose, but only the method of accomplishing that purpose. He was always certain that he could do what he wished, and he did succeed in doing it, and even impressed the onlookers with the certainty of his success.

He was sparing of blood, and yet not easily alarmed by hæmorrhage; so that he often saved the patient from loss of blood, by simply continuing the operation, notwithstanding smart bleeding going on. Another man might have stopped to attend to the bleeding, and then returned to the charge, only to be again stopped by the recurrence of hæmorrhage. He would finish the operation at once, and then stop the bleeding once for all. His early experiences in days of profuse bloodletting had probably taught him that really little blood is lost in most surgical operations.

His thorough knowledge of anatomy, obtained when he taught it in his youth, and ever afterwards kept up, was shown specially in his operations on the arteries and on the jaws. He used constantly to impress on his students the importance of repeated and careful dissection, not only to learn the relations of parts, but also to teach the finger the feeling of the various tissues.

Mr Syme mixed very little in the public life of Edinburgh, except in the matter of the Infirmary site; but few men were more respected. By medical men, his shrewd, sensible advice was often sought upon other subjects than Surgery, and always given cheerfully.

But Syme was a quarrelsome man, we are told; and so he seemed to be. He was a man of strong opinions, and a very hard hitter either in attack or defence; one of those who, having something to complain of, did not stop at *querela*, but made it *quarrel*. We do not believe that Syme had more of the bitterness and ill-feeling in his heart than most of us have, though he could not conceal it so well. He lacked the varnish which conceals the sting without depriving it of venom. He could not, like the son of Zeruiah, say, Art thou in health, my brother? to the man he meant to wound. Besides, he was curiously unable to disassociate the man from his opinions. If a man was evidently wrong in his surgery, it was apt to follow that he was not only a fool, but a bit of a knave; and then, in exposing the surgical error, Mr Syme did not greatly care to conceal his further opinions regarding the erring brother.

And was Syme also an obstructive, opposed to all inventions but his own? True, latterly, he was conservative—what wise man over fifty is not?—but no one was more open to conviction than Syme was. He bitterly opposed ovariotomy, but came to rejoice cordially in Keith's success; he modified his views as to excision of the knee-joint; he watched to the last with the greatest interest every new modification in the dressing of wounds; and in some instances, in which his conservatism seemed most trying, late experience has proved he was right.

We do not wish to imitate American minuteness of personal detail; but it is of medical interest to notice the personal habits which aided Mr Syme to maintain for fifty years of severe and trying labour almost perfect physical health. He was an early riser, breakfasted at eight, and often had been round his garden before breakfast. He then walked, except when the weather was very bad, to his chambers in town, nearly two miles, thus securing a supply of fresh air for the day. He was at hospital from half-past eleven to one, and generally managed to leave town for Millbank not later than four o'clock; thus securing time for another stroll in the garden, even in winter. He took no luncheon, dined at six, and went early to bed.

In personal appearance Mr Syme was not remarkable. Rather below the middle height, he had a well-knit, active frame, with a slight stoop, and a breadth and squareness about the shoulders, almost approaching to clumsiness. His face and head gave an impression of power, and a certain immobility and self-containedness about a large mouth completely redeemed it from coarseness, while his eye, without being either bright, mobile, or piercing, was intensely expressive, and absolutely fearless and intelligent. It was the eye of a brave, honest, manly nature, incapable of shift or policy, and on it you at once rested, and forgot that the face was not one of classic outline. The forehead was high and broad, with scanty gray hair; the eyebrows well formed, marked, and mobile. Like many brave men, Mr Syme was a very shy man; and his diffidence, and want of knowing exactly what to say when there was nothing particular that needed to be said, made strangers think him at first stiff and distant. None of Mr Syme's photographs are satisfactory. Perhaps the best is one by Moffat, about 1859 or 1860, of cabinet size, and in a sitting posture; but all make him stiff and gloomy. Richmond's picture is pleasant, but idealized and over refined. We believe that one who did not know Mr Syme would get the best idea of what he was from a well-shaded photograph of Brodie's wonderful bust, which is as perfect a likeness as marble can give of one whose chief feature was the power of his eye.

When a young man, Mr Syme looked prematurely old and wise; when a man approaching seventy, he still looked fresh and active; and his activity in running upstairs, which sometimes with almost boyish pleasure he would exhibit, was very remarkable. His old pupils, on returning after twenty or thirty years' absence, used to see very little change, and think that with him time had stood still. Within the last decade, he had begun to get a little stouter, but without any approach to fatness. His costume was a little peculiar, as he almost always continued faithful to the dress-coat, even during the day; and combined it with light trousers, and a neckerchief, large in size, and of a peculiar black-and-white or blue-and-white check, which all his old pupils will remember with affection.

It is foreign to the subject of a paper like this to speak of Mr Syme in his domestic relations; but any notice of his life would seem to his old friends and pupils as very incomplete, which did not allude to his kind, cordial hospitality. Few houses were pleasanter than Millbank. He was naturally averse to crowds, noise, and display; so his guests rarely exceeded the classic number; but the smallness of his parties was more than made up by their frequency and thorough pleasantness. As a host his manner was most agreeable; he led, without usurping the conversation; was full of anecdote and humour; but, above all, he was sincerely glad to see his guests. Mr Syme asked no one to his house for mere conventional necessity, was not much trammelled by policy or fashion, but invited those whom he liked, because he enjoyed their company. Strangers whose appearance he fancied, or who brought a good introduction, he never neglected; and many foreigners, who scarce understood a word he said at hospital, learned to know him at his own table. House-surgeons and dressers were ever welcome: and the stroll in the garden and the walk to the Infirmary after the quiet Saturday dinner, will be long remembered by many old house-surgeons, as among the most pleasant relaxations from their trying work.

He loved, with an intense affection, very remarkable in one whose mind was so active, the quiet beauty of his home—and no wonder. Though within half an hour's walk of the Infirmary and Princes Street, its isolation is perfect, and the appearance of solitude absolute. On a sunny slope facing Blackford and Braid Hills, and in full view of the Pentlands, not a house is visible from the windows, nor does the noise of the town interfere with the stillness. There Mr Syme had every advantage, natural and acquired, for indulging his love for flowers, which in him amounted to a passion. His hothouses gradually became larger and more numerous. He grew pines and grapes of great size and beauty; and, latterly, had great success in the cultivation of that most fickle and tender plant, the banana. But his flowers, roses, heaths, azaleas, and, latterly, orchids, were his principal pride and pleasure, along with many rare herbaceous plants. On the very day of his first paralytic seizure, a case of new orchids had come home. He remembered them, ordered them to be unpacked, and next day had some of them brought up to his bed to be examined.

Beyond his garden, his tastes were few and simple. He did not care for amassing treasures of art. He had no liking for sport; neither fished nor shot, nor even rode. He read a great deal latterly, not much surgery, though he must have read surgery in his youth, from the extensive knowledge he always showed, not only of the English surgical classics, but even of the older and more obscure Latin treatises. The memoirs of the French Academy he had carefully studied, and used often to recommend their perusal. The works of the present day were too wordy, and not well enough written, for his severe taste. Any work which seemed in the least to be an advertisement was his abhorrence.

He was a thorough French scholar, and enjoyed a good novel in the original. No man was better up in the general news of the day. He managed to read regularly several newspapers, including the *Times*, and by discriminating selection, got the news out of them, without allowing them to be a burden to him.

We conclude this notice with an intense feeling of its being unsatisfactory and inadequate. To those who knew Syme only as the reticent, self-reliant, combative surgeon, it must appear too much of the mere *éloge;* while to the inner circle of friends who alone really knew the man, it may seem measured, cold, and heartless. In their memories, in the universal love and respect which every one of his old students and assistants has for him, will be found Syme's proudest monument and most enduring memorial.

"Multis ille bonis flebilis occidit."

DEATH OF SIR JAMES CLARK, BART., K.C.B., F.R.S., PHYSICIAN IN ORDINARY TO THE QUEEN.—This distinguished medical man was a native of Cullen, in Banffshire, and from the obscure position of a navy surgeon he rose, by force of talent, perseverance, and uprightness of conduct, to be the loved and trusted medical adviser of our Queen, and the most influential medical man in the realm, the man who most of all was able to bring professional opinion to bear upon state questions for the good of the commonwealth. His well-known work on "Climate" was written at an early period of his career, and throughout his long life he evinced the sound discretion of his medical wisdom by his caution in the use of drugs, and his ardent devotion to sanitary science. Full of years and honours, he died at Bagshot Park on the 29th of June last, at the age of eighty-one.

DEATH OF JAMES COPLAND, M.D., F.R.S.—Perhaps the most learned, and certainly the most laborious of medical men, Dr James Copland has built himself an enduring monument in his "Dictionary of Practical Medicine," which, from the accuracy of its description and the copiousness of its bibliography, must long continue to be the most frequently-consulted work of reference on medical subjects. Dr Copland was born in the Orkneys in 1791, and died at Kilburn on the 12th of July last.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Narrative of Head Cases of Obscure Diagnosis, with Remarks.* By Dr WILLIAM L. GIBSON, Consulting Physician to the Royal Infirmary, Dundee, etc.

(*Read before the Forfarshire Medical Association, 14th July* 1869.)

IT is now many years since the following head cases occurred in my practice.

They are only three in number, and were all alike fatal; much of their interest turning, as it seems to me, upon the singular and startling, but most instructive discordance, which post-mortem examination disclosed in them all, between the actual morbid changes that had taken place within the head, and the notions as to what their exact seat and nature would or would not prove to be, which, judging only from the symptoms during life, had previously been entertained and expressed, with more or less confidence, both by myself and by others.

For my own part, therefore, I cannot help feeling, that, few as the cases I am about to communicate are, they may not only read us a lesson of self-diffident caution, and abate the temptation to which all of us, perhaps, are more or less subject, to dogmatize in such matters, and to map out, as it were, in our own minds beforehand, the special lesions which we *ought*, as we think, to find in the head after death, in a case we may be attending of hopeless cerebral mischief, with as much confidence almost as, thanks to the stethoscope, we may nowadays fairly enough venture to do with respect to the chest, in diagnosing during life the great majority of thoracic diseases; but that they may also be regarded as aids to us in our endeavours to make our diagnosis in such cases more certain.

CASE I.—The first case I will mention is that of a lady, of about thirty years of age, to whom I was urgently summoned at an early hour of the morning of the 12th of July 1843.

About six weeks before, I had attended her in her fourth easy and rapid confinement; and, though not yet very strong, she had, up to the moment of the attack I am about to describe, been free from all ailment, and, having abundance of milk, was nursing her infant, without further inconvenience than that attendant upon an excoriated and painful state of the nipples; when, after a day spent agreeably with some friends out of town, and a hearty supper taken with unusual relish before going to bed, she was suddenly awoke between four and five in the morning, after a sound sleep of some hours, by an attack of violent sickness and vomiting, naturally enough ascribed at the time by herself and her husband to her too plentiful supper of the evening before.

I saw her within an hour after this unlooked-for illness came on. The sickness and violent retching continued. But what she complained of the most, was an intense feeling of giddiness, on the slightest attempt to move or raise her head from the pillow. But of headache there was none; and, save that both light and noise distressed her, she presented no other symptoms deserving of notice. For her mind was unclouded; she showed no indication of any paralytic or convulsive affection; her tongue was clean and moist; her epigastrium free from all tenderness; her bowels had been habitually in a regular state; and the slight acceleration of her pulse, which was otherwise natural, seemed due chiefly to the incessant retching by which she was harassed.

It is needless to enter into any of the details of the treatment adopted under the belief that the case was one chiefly, if not wholly, of functional gastric derangement. Suffice it to say, that all the usual remedies, perseveringly used for a number of hours, having failed to check or relieve the urgent sickness and vomiting, and as she was becoming extremely faint and exhausted, both from inanition and protracted distress, I determined to try opium as a final resource.

Of this, one grain, in the form of pill, to my great satisfaction as well as her own, arrested the sickness at once; and, having repeated the dose after an interval of two or three hours, she dropped over into a quiet and tranquil sleep of some hours' duration, awaking greatly refreshed, and expressing herself as almost free from every feeling of illness.

She was much exhausted, however; and the secretion of milk, which, as said before, had till this attack been abundant, now ceased altogether.

Still, with the exception of weakness, she steadily improved for the next ten or twelve days; spending a great part of the day in the drawing-room, lying on a sofa; sleeping well; taking with relish a fair allowance of butcher meat and of wine; and seeming, in short, to be in a fair way of speedily regaining the ground she had lost; when, without the slightest traceable cause, she was again suddenly seized in the night with precisely the same train of symptoms as on the former occasion; these again, as before, yielding to opium only, of which she took three grains in all, in doses of one grain at intervals of two or three hours, ere the full tranquillizing effect of the drug was obtained.

It was now fondly hoped that all would again go well. But the sleep which succeeded the last dose of opium gradually became so very deep and prolonged, that, in the entire absence from the first of a single symptom suggestive of independent brain mischief, I began, I confess, to entertain grave apprehensions lest, owing to my patient's exhausted condition, and possibly some helping idiosyncrasy also, the opium might in this instance have unhappily acted with cumulative and poisonous energy.

Accordingly—for by this time her condition was that of deep coma—the usual antidotes were most anxiously and perseveringly used for some hours; the cold douche to the head being, however, the only one that showed any rousing effect; this being evinced by her opening her eyes for a moment or two, on each application, with a look as if she recognised for the time one or other of those in anxious attendance upon her.

But all our efforts proved vain; the douche itself ceased by-and-by to produce any effect; and she died at the end of about thirty-six hours from the commencement of the second attack.

Who, judging from symptoms alone, could have guessed,—certainly neither of the late Drs Bell (who towards its conclusion saw the case with me) nor myself ever did,—that the sole morbid appearance which a careful post-mortem examination would reveal in this case, would be white softening of the entire right lobe of the cerebellum, which was in a diffluent state?

To my own mind the relief, no doubt, was indescribably great, to have the distressing misgivings I had felt as to the possibility of my having poisoned my patient, how accidentally soever this might have happened, thus so completely removed. But this in no degree lessened the puzzle, which, to the present moment, I confess, remains unsolved to my mind, of tracing clearly any connexion between the symptoms, whether positive or negative, which characterized this singular case during life, and the structural mischief discovered in the brain after death.

The intense vertigo and obstinate vomiting, in the absence of foulness of tongue, much epigastric uneasiness, or any other marked local indication of gastric or hepatic disorder, may doubtless be regarded as having been at least suspicious symptoms. But the equally entire absence, on the other hand, of any further symptoms pointing less equivocally to the brain as the real seat of the mischief; and the readiness, moreover, with which the two first-mentioned symptoms yielded to opium; to say nothing of the long period of apparent recovery which elapsed between the attacks: all these considerations seemed to negative any idea of the latter being purely of cerebral origin; least of all could the cerebellum have been suspected of being the sole seat of disease, as will be admitted, I think.

But how, next, taking into consideration the comparatively early age of the patient, account for the occurrence of the white ramollissement itself?—for, that it was absolutely non-inflammatory was convincingly shown by the entire absence of any visible indication of the opposite state. Could it, then, have proceeded from embolism, whencesoever arising, but limited to the nutrient arteries of the right lobe of the cerebellum, and causing its death?

To myself this appears, I must say, after the best consideration I have been able to give to the subject, the only tenable hypothesis upon which to explain it.

At the post-mortem, it is true, no embolic occlusion of any of the cerebral arteries was actually seen to exist. To show, however, that this, if it be thought an objection, is wholly inconclusive, it will be sufficient for me to say, that at no stage of the examination was any such state of these vessels either thought of or sought for; and that as little did it strike any one to inquire into the condition, for instance, and specially, of the cardiac valves: two most important omissions, no doubt, and such as, in any similar case occurring now, would be quite inexcusable; but omissions, nevertheless, which, under the circumstances of the case we have to do with at present, a word or two, I apprehend, will both excuse and satisfactorily explain in a moment.

For it is to be remembered that, of the great pathological fact of arterial embolism,—certainly at least as regards its taking place at a distance, oftentimes very remote, from the source of the plug,—the profession knew absolutely nothing at the period (1843) when this case occurred; nor, indeed, did medical men come to know anything of it till about four years thereafter, when, through the elaborate investigations of Virchow and others, constituting as they did a true epoch in the progress of medical science, it came forth at last, step by step, to throw just the light that was needed on many a case, and this one among the number, as I cannot but think, that had heretofore been inscrutable.

If, then, notwithstanding the entire absence of ocular proof, we must needs believe embolism to have been the sole cause of the white softening here, it follows, I think, without at all wishing to push conjecture too far, that we must go a step further, and in like manner accept it as affording the only conceivable clue to the interpretation of the partial recovery which the patient underwent for a time; inasmuch as we now know it to be the tendency of certain emboli to undergo a disintegrating and breaking-up process, such as may either, on the one hand, lead to the plug so changing its position in the vessel it occupies as to allow the circulation to be, as we will suppose in this case, only temporarily restored in the part; or, on the other hand, admit of the obstructing body being speedily dissolved and removed out of the way altogether, so as to do no further harm; of which last occurrence, as far as it was possible to judge at the time, my memory recalls at this moment a most interesting and notable instance some years ago, in one of the lower extremities of a young medical man, now living, and bidding fair to distinguish himself.

I need only say further, as showing how exceedingly rare the occurrence must be of a case such as this, that I have searched in vain for any record or even hint of another bearing any resemblance to it in its symptoms and history, throughout the various leading works, both British and foreign, to which it has been in my power to refer.

CASE II.—The next case I have to narrate is of quite a different kind.

In the month of October 1848, a gentleman, of about thirty-two years of age, in proceeding to try, at Newport, a riding-horse he had recently purchased, and which unhappily for him proved a vicious one, had barely got into the saddle when he was thrown with violence, falling head foremost on a hard but perfectly smooth macadamized road, from which he was immediately lifted in an insensible state, and carried to the inn close at hand.

I saw him about two hours thereafter, along with Dr Lyell of Dundee, and Messrs Low and Laing of Tayport, when he was found lying in bed on his back, in a profoundly comatose state; the whole of his right side apparently paralyzed, but his left arm and leg affected with involuntary jerking movements; while in the very centre of his forehead there was a large ecchymosed tumour of about the size of an orange, but without the slightest abrasion or wound either there or on any other part of his head.

Fully aware as we were, of course, of the purely deceptive *feel* of fracture of the skull with depression which these bloody swellings of the scalp, from contusion, are apt to convey to the examining finger, we nevertheless thought it well, in a case of such urgency, to remove whatever room there might be for doubt on the subject; and I accordingly made a free incision through the centre of the swelling down to the bone, so as to admit of the latter being fully examined; when we found, as we expected, that the skull itself was uninjured.

The lamented patient, however, afterwards lingered on, with little essential change in his state, for twelve days, ere he sank; whilst a distinguished Professor of Clinical Surgery, of unbounded experience, who saw him, in consultation, two days before death, stated it as his confident belief, in which we on our part entirely concurred, that on opening the head we would find the whole surface of the left hemisphere of the brain covered with a thick layer of coagulated blood, reaching down to the base of the cranium, and causing fatal compression.

But what became of this diagnosis, when put to the test?—so plausible, too, as it looked, and so entirely in keeping, moreover, as it confessedly was, with the teaching on this point of almost every surgical writer of weight,—why, that, as applied to this case at least, it was a total mistake; the post-mortem examination disclosing merely two small coagula, each of them about the size of a filbert, and these embedded respectively in the very centre of one or other of the anterior lobes; or, to express it more clearly, the one in the right, and the other in the left anterior lobe of the brain, so as to present indeed a singular and striking appearance of symmetry; while the most painstaking search failed to discover on the surface, as predicted, or in any other part of that organ, the slightest vestige of hæmorrhage or of any other lesion or injury.

So much, then, for the fact, with its lesson of caution. Now for a word or two by way of attempting to arrive at the real cause of the otherwise mysterious and anomalous symptoms by which, as long as life lasted, this case was marked.

Compression of the brain being wholly put aside as having had no share whatever, or only the very smallest, in causing the symptoms,—for surely it will not be alleged that the compression occasioned by the presence of the two small coagula in the anterior lobes may have been sufficient to do so,—what, I submit, remains to account for them but concussion alone? through the profoundly disturbing, and perhaps actually disorganizing, effect which, when violent,—as was long ago suggested by Sir Benjamin Brodie with his wonted sagacity,—concussion pure and simple can scarcely fail to produce in the minute structure of an organ so complex and delicate, to the extent even, it may be, of abolishing its functions entirely, though without leaving a trace of structural mischief such as the eye can discern, except by the aid of the microscope, which I therefore greatly regret was not in this instance employed.

But the case appears to me to be still farther instructive, as showing for how great a length of time—twelve days, as already said, in this instance—the immediate effects of fatal concussion may continue before death ensues; and that without, from first to last, the supervention of one of those so-called "stages" of vital reaction, for the occurrence of which, within a few days at most, systematic writers direct us—and, as a rule, justly—to look out and prepare, in every case where the injury, though violent, has been thus long survived, viz., first, recovery from the primary stupor and collapse, with restoration more or less complete of consciousness; and, next, inflammatory mischief in the brain or its membranes, as the evil to be chiefly dreaded and guarded against. In this respect, therefore, as well as others, this case is undoubtedly an exceptional one; nor do I attempt to explain it. But to my mind it is not the less suggestive of some modification being called for in the statements and views which, so far as I have been able to learn, have hitherto been considered the only accurate ones as regards the history of this class of injuries.

Of course, these remarks have no reference to those cases where the patient, surviving the earlier effects, whether inflammatory or not, of the injury, lives long enough afterwards to admit of the development of those more chronic and lasting effects upon the brain and the mind, to which, as we all know, concussion too often gives rise.

CASE III.—I now proceed to the third and last of the cases.

In the month of July 1858, during my occupancy of the post of attending physician to the Royal Infirmary here, a man, employed at the Dundee harbour as a "weigher," and of about sixty years of age to appearance, was found one morning, about eight o'clock, seated, as if asleep, at a desk in one of the small movable offices there; his arms crossed before him on the desk, and his head resting upon them.

It was soon, however, discovered that he was not merely asleep, but profoundly insensible: and the late Dr Webster, then surgeon to the harbour, having been summoned to see him, he was immediately sent off to the hospital.

I saw the man there myself shortly afterwards, at the usual visiting hour; when I found him presenting all the symptoms of a severe apoplectic attack; profound coma, loudly stertorous breathing, paralysis of the whole of right side, with flapping of the flaccid muscles of the cheek of that side; and emitting only a feeble groan now and then.

In this state he lay, with little change, for two days, when he sank.

At the post-mortem examination, to the extreme surprise of all present, as there was not a single mark of contusion or violence of any kind to be seen on any part of his head, he was found to have sustained an extensive fracture, but without depression, of the left parietal bone, which presented a number of long fissures, radiating from a point near its centre; one of them extending right through the squamous portion of the temporal bone.

On raising the calvaria, the whole left hemisphere of the brain was found covered with a thick layer of firmly coagulated blood, which extended to the very bottom of the cranial cavity, and was now seen to have proceeded from the middle meningeal artery and the contiguous portion of the dura mater itself, having been completely torn across at the time of the fracture, which was now also found to have penetrated through both tables of the skull, as far down as the petrous portion of the temporal bone.

Here, then, was a puzzle! When and how could this man have sustained such an injury? Could he have met with foul play at the harbour on the morning when he was found as described?—as was suggested for a moment at first, but which was scarcely conceivable, inasmuch as, in so public and crowded a quarter, no assault sufficiently violent to cause such a fracture could well have passed unobserved.

Yet, how else account for his having been seen at work at the harbour so shortly before?

On the other hand, and stranger still, how explain the entire absence of any external marks of violence to account for the fracture?

Before a week, however, had passed, all such conflicting and useless conjectures were brought to an end; and a case which at first seemed so enshrouded in mystery as to run a chance of proving, in its small way, a sort of *cause célèbre* in fact, turned out to be, after all, a very prosaic and simple affair. For, having, after a good deal of trouble, and not without the help of one of the detective police, found out the person—a decent and elderly woman—with whom this poor man had lodged, it was ascertained, without leaving room for a doubt, that, three whole days before that upon which he was found at the harbour in a comatose state, he had—whether when in liquor or not, she could not well say, but with his hat on, she was certain—fallen down the long flight of stone steps leading to her underground dwelling, and been severely stunned at the time; but that he had wonderfully soon, to all appearance, recovered himself, and gone about much as usual, though somewhat confused, and complaining of his head now and then.

The cranial fracture was now, of course, accounted for clearly enough, and the absence of any external sign of injury also explained, by the protection which his hat had afforded him at the time of his fall: while, for the rest, the case resolved itself into one of that class, of which a few are on record, showing the surprising length of time during which hæmorrhage from a lacerated meningeal artery may slowly go on, ere the brain undergoes fatal, or even very visibly injurious, pressure; and it seems to me probable that in this instance the internal bleeding, at first very moderate, had become suddenly accelerated to a fatal extent, on his stooping, or making some bodily effort, the last time he worked at the harbour; till faintness perhaps, or vertigo, or the conscious approach of stupor, or, more likely, all three combined, constrained him to make his way as best he could to the office, and seat himself there.

But be this as it may, well was it, truly, that all the antecedent facts of the case of any real moment were so soon and so clearly made out; seeing the ugly look of grave medico-legal importance which to the minds of many it had already begun to assume. The police were on the alert, too, though quietly: and it is far from improbable that, had the case from any cause failed of being so thoroughly and satisfactorily stripped of its mystery, some wholly innocent man would sooner or later have been taken up on suspicion to be tried for his life: dismissed from the bar with the ambiguous and damaging verdict of "Not Proven" upon him, to cleave to him for the rest of his days: and thus perhaps only to escape a halter itself, for want of circumstantial evidence sufficiently strong to convict him of murder!

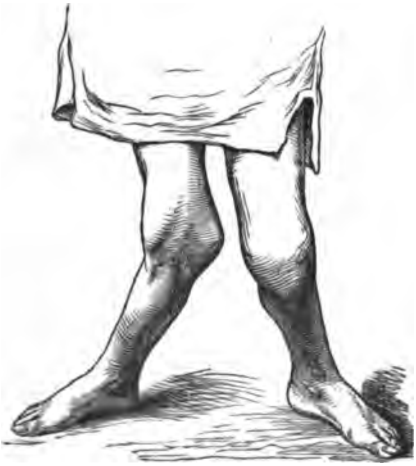
Things much more unlikely, I scarcely need say, have happened again and again.

ARTICLE II.—*On the Treatment of Fractures of the Thigh by the Extension Method.* By THOMAS ANNANDALE, F.R.S.E., Surgeon to the Edinburgh Infirmary, and Lecturer on Surgery.

THE treatment of fractures of the thigh by the extension method, as suggested by American surgeons, is of great value, and is, in my opinion, especially so in cases which are complicated with a wound of the soft parts, with some old-standing deformity of the limb, or with some other circumstance which renders the application of the long splint inconvenient. A great variety of splints for making extension and counter-extension in fractures of the thigh has been suggested, but the majority of these are quite unnecessary; for in the adhesive plaister and simple weight, we have a most efficient means of attaining this object. Hamilton[1] remarks, "The adhesive bands are, beyond all comparison, the best means of making a permanent extension which are at present known to surgeons."

Having had experience in the excellent results obtained by the adhesive plaister and weight in ordinary cases of fracture of the thigh, I can testify to their efficiency; but I wish here to direct attention to their successful application in the following complicated case, with the hope that the account may be interesting to any of my professional brethren who may be called upon to treat a similar accident.

FIG. 1.



W. W., æt. 21, afflicted with the aggravated deformity (knock-knee), illustrated in Fig. 1, was admitted into the Royal Infirmary on the 7th May 1870, on account of a recent simple fracture of the middle third of his left femur, the result of a fall. Owing to the distorted condition of the knee-joint, the injured limb could not be brought into the straight position, and I therefore determined to treat the case by flexing the limb, and applying the plaister and weight. This was done by flexing the knee, adjusting the fractured bone, and applying the ends of a long strip of adhesive plaister, about two and a half inches wide, to the lateral aspects of the thigh from its middle-third to the condyles; the loop of the plaister being carried over the knee and round a square-shaped piece of wood with a hole in its centre. Two or three short strips of plaister were then passed partially round the thigh, and over the ends of the long strip, so as to prevent them slipping; one strip was also passed round the piece of wood and loop for the same purpose. The thigh having been laid on its outer aspect and a firm pillow placed below it, the weight (seven lbs. of sand in a bag) was attached to the square piece of wood by means of a cord, one end of which was passed through the hole and knotted. The cord, with the weight connected, was now passed over a small pulley fixed to the top of an upright piece of wood, placed in a convenient position at the side of the bed, and fixed to the floor. In order effectually to steady the ends of the fractured bone, three short pieces of wood splint, well padded, were applied to the lateral and anterior aspects of the thigh over the strips of plaister, and secured by means of loops. The apparatus, as thus applied, is illustrated in Fig. 2, taken from a photograph. The photograph was taken before the wooden splints were put on, so as better to show the application of the plaister, and therefore the splints do not appear in the engraving.

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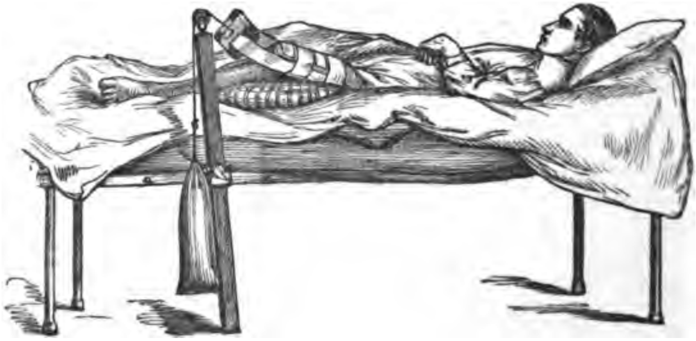
[1] Hamilton on Fractures and Dislocations.

FIG. 2.



After the apparatus was applied, the patient felt quite comfortable, and his progress was most satisfactory. At the end of a few days, as the patient was being gradually drawn towards the injured side and secured to the bed by the weight, it was found necessary to make a little counter-extension, by means of a broad band passed round the perineum and opposite groin. This band had the desired effect, and the apparatus was not interfered with until the ninth week after the injury, when it was removed, and the fracture was found to be perfectly united. Two days after this, the patient was going about on his crutches, and in a fortnight he left the hospital quite well.

The same apparatus acts most efficiently with the limb placed in the straight position; but in this position the ends of the long strip of plaister are best applied to the lateral aspects of the leg, the loop being passed over the heel, and round the piece of wood to which the cord is connected, and the pulley should be adjusted at the bottom of the bed. The counter-extension may be made with a band as in the case related, or by raising the lower end of the bed a few inches so as to allow the weight of the body to be the counter-extending agent.

My experience of this plan of treatment suggests to me the following advantages which it possesses:—

1. The injury can be treated with the limb in the extended or flexed position, whichever is most convenient.
2. The limb can be from day to day examined, and any wound, if present, dressed without interfering with the apparatus.
3. There is no undue pressure on any part of the limb.
4. The patient can move or be moved in bed with great ease and comfort.

ARTICLE III.—*Lunacy and Limited Responsibility.* By J. H. BALFOUR BROWNE, Esq., Barrister-at-Law.

MANY men have a pleasant way of taking difficulties to bed with them. They sometimes awaken in the morning to find the difficulty gone, and in its place, a precipitate of wisdom. Their circumstances have creamed—their course is clear! Other men allow a difficulty to go to sleep, hoping that time will remove it. There is a Fabian policy with regard to mental matters. If a man has doubts, and cannot clip their wings, and confine them to the yard of his life, some folk would say of him he is happy; others would say he is a fool. The latter class is composed of those who, when they come to a question that they cannot answer, dismiss the subject by thinking it is one of those things that it is not meant that man should understand. A very easy way through life those people find for themselves, for questions are thorns. Such a creed is the panacea for contumely. To look upon humanity as a line drilled by fate or Deity, and yourself as the pivot man, to stand fast or mark time, and be certain that, notwithstanding the seeming progress of the men at the other end, you will be found as far forward as they in the end, is a pleasant creed. Are not creeds cradles? and do they not rock us to sleep—sleep with dreams? But in questions which have to do with the relation of man to man, there is an urgency which won't allow of our placing them on the shelf to ripen, as we do apples. We must get at a sort of truth now. There is a corn under the tight leather, and in order to get rid of the pain, even though anon we have to put a patch on, we must cut the shoe. So we must legislate, although anon we may require to amend, and then in a little while to repeal. So that the best laws might really be said to grow, and not to be made. Whatever the growth of humanity shapes seems, even in its inanimacy, to partake of the attribute of life.

No part of the laws of this country has, if we may judge from the outcry of a certain class of the community, been more hard upon the corns of poor humanity than that which regulates the relations of men who are sane to men who are not sane. That some legislative interference was necessary to regulate the numerous relations of those two classes of persons was evident even to our incompetent ancestors. We have certain laws. A man makes a will and dies, and his relations who are not mentioned in the testament, and who would have profited in case of an intestacy, assert that the testator was mad, and therefore unable to make a will. A man with property is profuse in his expenditure, and those who would profit if he was a miser, maintain that he is insane, and therefore unable to manage his affairs, and request that his hands be tied by the red-tape of the law. An act which in the case of a sane man would be a crime, is committed, and the question arises as to whether the individual is sane or insane; whether, under the law as it at present stands, the person committing the crime is liable to suffer punishment for the act committed by him, or is to be exempted on the ground of unsoundness of mind? These questions, which are evidently, in individual cases, of paramount importance, and which very frequently arise in practice, indicate the necessity of arriving at some thorough answer to the question—What is this insanity which incapacitates a man from making a will, from managing his own affairs, and which, in case he commits a crime, will protect him from the ordinary consequences of such an act?

This question and its answer has caused much difference of opinion. Long before medical men even considered themselves in a position to answer the question, it was necessary that some answer should be recognised in courts of law. The legal relations of the insane were determined long before medical men were prepared to look upon insanity as a disease, and while they still regarded it as a "possession" by devils, which might, if swine were "handy," make them, by an epidemic impulse, run down into the sea and be choked. When medical men began to see that the whip was not in all cases a cure for mental disease, when those who suffered from mental aberration began to be looked upon more in the light of those who were sick than in the light of those who were wicked, the profession began to complain of the injustice with which the laws treated persons of unsound mind; and in the reaction which followed the long persecution of the insane, the medical profession has endeavoured, in a sort of making up of the accounts of justice—which tempts a mother to be kind to a surviving child because she killed another by cruelty—to look upon all criminals in the light of the sick; and has demanded for them the same untiring vigilance and soothing attention, the same solicitude, and the same indulgence, which is looked upon as the right of those who suffer from bodily disease. They seemed to hold with the Northern Farmer, that—

> " 'Tisn't them as 'as money as breaks into 'ouses and steals,
> Them as 'as coats to their backs, and taaks their regular meals;
> Noa, but it's them as never knaws where a meal's to be 'ad:
> Taake my word for it, Sammy, the poor in a loomp is bad: "

And that the way to put an end to crime was to propagate luxury, and that the way to diminish the criminal class was to suppress poverty. The feelings of the community are at the present time all on the side of the humane treatment of our insane and criminals; and it is owing to this fact that the important question as to what the law ought to recognise as insanity, and in what cases it should be held to incapacitate from the enjoyment of privileges, and in what it should be held to protect from the consequences of certain quasi-criminal acts, has been lost sight of, or at least has received only a breathless and unsatisfactory answer. In a class, when it is doubtful to whom a question is put, and when all the members answer together, the master cannot make out one correct answer. Now, the question stated above has suffered in its answer, because there is much doubt as to who has a right to answer it. Medical men assert that it is theirs to say what insanity is, and lawyers assert that it is theirs to say what the law calls insanity; nay, further, legislators have asserted that it is theirs to say what the law ought to call insanity. So, between all the answering, the ear of the public has been quite full of noise and hubbub, but it has not received a satisfactory answer to the question. It may even be doubted whether a satisfactory answer has yet been given!

The antagonism of the two professions with regard to the property in the question has militated much against the accuracy and excellence of the answer. When the property of such a question has been in dispute, it is thought incumbent that the answer should be satisfactory when looked at from the point of view, and that it should go far to demonstrate the rightful ownership of the party answering it; and it can be easily understood that the existence of such an element in the mind during the taking of the evidence would render worthless the result of the investigation. Lawyers felt called upon to prove that the law had said, and did say, what insanity was and is, and that the legal definition of insanity could not be improved upon. Medical men, on the other hand, in their answers to the question, attempted to prove the utter incapacity of any class of persons to deal with such questions save a class which had been educated to appreciate the bearings of disease; and further, that the fact was that the present state of the law was grossly unjust. Human nature has a tendency to monopoly! So the question is still an appetite! Again, the medical profession was in times gone by incapacitated by its ignorance of insanity, and in more recent times has been somewhat incapacitated by the common sentiment of the time from answering the question. The petting of lunatics and criminals was the game to play. Showy philanthropy was on the cards. A man who would say with Emerson that the insane and infirm were "fit cases for a gun," was looked upon as a brute. The man who gave a weekly dance and a halfpenny bun to the insane patients under his care, who never had recourse to restraint, and induced the lion mania to lie down in the same ward with the lamb imbecile, was looked upon as a true modern hero! One does not blame a man, or a class of men, for doing what the omnipotent guide, "How-to-get-on," bids them, although one certainly regards a person under the influence of such principles as incapacitated to judge fairly of many questions which might be brought under his notice. However the fact may be accounted for, it remains a fact that, as yet, no very satisfactory answer has been given to the question stated above.

Many people think, with some plausibility, that proverbs are the *vox populi*; and they are certainly a truer *vox Dei* than the thunder which children at the present day are taught to believe emanates from the lips of God. That proverbs are agreed-upon wisdom is certain, and that the agreed-upon wisdom of an age often comes near to the truth, is a fact capable of proof. It has become usual to say that medical men find a difficulty in arriving at any uniformity in their conclusions, and the fact that their opinions differ has become proverbial. In no cases do they differ more than in those which involve a question of sanity or insanity; and the evidence given in very many cases would lead a casual observer to believe that medical men do not understand the nature of an oath—for an oath surely, in its highest sense, would keep an individual who understood it, and felt bound by it, from speaking confidently upon a subject of which he had little or no knowledge. But it is not so; and it is not a matter for wonder to any one that Lord Campbell spoke as he did to the three physicians employed in the Bainbrigge case, and that many other judges have felt it their duty to speak of the medical testimony in a similar manner. There is a tendency in all witnesses to become advocates; and one finds that they invariably use the possessive pronoun "our" with regard to the side on behalf of which they are summoned. But when they become more than advocates, and seem to forget that ignorance should be a short and not a long tether, they somewhat disgrace themselves and the profession to which they belong.

In considering the question as to what the law recognises as insanity, I will, according to custom, in the first instance, quote Lord Coke's description of the four kinds of men who may be looked upon as *non compos mentis*.[1]

1. An idiot, who from his nativity by a perpetual infirmity is *non compos;* 2. He that by sickness, grief, or other accident, wholly loseth his memory and understanding; 3. A lunatic that hath sometimes his understanding and sometimes not, *aliquando gaudet lucidis intervallis*, and therefore he is called *non compos mentis* so long as he hath not understanding; 4. He that by his own vicious act for a time depriveth himself of his memory and understanding, as he that is drunken.

No one argues that Lord Coke's classification is without defect. Indeed, each description has faults, and these faults have been over and over again found out. To make the first intelligible, the word *idiot* would require to be defined. To make the second true, a construction would require to be put upon it, which no torturing of the words could make them bear.

Commissions of lunacy were originally granted for the purpose of inquiring whether the individual was either an idiot *ex nativitate*, or a lunatic, in the meaning of the term attached to it by Lord Coke. Ultimately, however, the phrase, "unsound mind," was used in the writ with the view of embracing all those who were considered proper objects of the commission, and who did not fall under either of the terms used in the writ which was originally issued. Lord Hardwicke and Lord Eldon made attempts to give this phrase a definite connotation; and Mr Amos, at one time Professor of Medical Jurisprudence in the London University, said that "the term unsoundness of mind, in the legal sense, seems to involve the idea of a morbid condition of the intellect, or loss of reason, coupled with an incompetency of the person to manage his own affairs;" but it has been decided "that if the jury find merely the incapacity of the party to manage his affairs, and will not infer from that and other circumstances unsoundness of mind, though the party may live where he is exposed to ruin every instant, yet, upon that finding, the commission cannot go on."[2] It has been argued that the necessity which the law casts upon the jury of inferring the "unsoundness of mind," especially when the phrase is not itself clearly understood, or at least defined by some of our ablest lawyers, is inexpedient, and that in many cases the finding of the jury that the individual was incapable of managing his own affairs, should be sufficient for the continuance of the commission. And yet many very cogent reasons can be given why our English courts were disinclined to sanction the commission, unless the return asserts mental unsoundness. The object of the commission is not to ascertain whether the party is or is not able to manage his own affairs, and is or is not capable of governing himself, but, whether by reason

[1] Coke's Littleton, 247 a.

[2] 19 Vesey, 286.

of mental infirmities, amounting to one or another kind or description of insanity, he is thus unable to manage his affairs or thus incapable of governing himself. And the principles upon which our law has made an inference of insanity necessary from the circumstances, seem to me to be sound, and founded upon a more thorough principle of justice than has been understood by those who argue against its expediency.

We are now in a position to consider how far insanity incapacitates an individual to contract. It is necessary to distinguish between *executed* and *executory* contracts entered into by or with a lunatic. A contract executed is one in which the object of the contract is performed;[1] an executory contract is one in which a party binds himself to do or not to do a particular thing;[2] and it is firmly established, with regard to the first class above alluded to, that a lunatic is liable for the price of necessaries, *i.e.*, goods suited to his rank and position, actually ordered and enjoyed by, and *bona fide* supplied to, him. In the case of Molton *v.* Camroux,[3] the right of a lunatic or his representatives to rescind an executed contract entered into by him, such contract, not being for necessaries, was called in question. A lunatic had purchased certain annuities of a life assurance company, and had paid the consideration money and a premium in respect thereof. After his death an action was brought for the recovery of the moneys paid by him by his administratrix, under the following state of facts as found by special verdict. At the time the annuities were granted, and payment of the consideration money made, the intestate was a lunatic and of unsound mind, so as to be incompetent to manage his affairs; but of this the assurance company had not at that time any knowledge. The purchases of the annuities took place in the ordinary course of business; they were fair and *bona fide* transactions, the grantee appearing to the assurance company to be of sound mind, although he was, in fact, a lunatic. The question, therefore, reserved by the special verdict was, whether the mere fact of unsoundness of mind, not apparent at the time of the transaction in question, was sufficient to vacate the act, albeit executed by the grantee by payment of the consideration money, and intended *bona fide* to be executed by the grantor by payment of the annuity. On deciding the question on appeal, the Court of Exchequer Chamber made the following remarks:[4]—"The old doctrine was that a man could not set up his own lunacy, though such as that he did not know what he was about in contracting.[5] The same doctrine was applied to drunkenness. It is true that there are some exceptions to the old authorities, and the doctrine is not laid down uniformly with perfect distinctness; but, in general, it was as above stated. Modern cases have qualified it, and enable a man or his representatives to prove that he was so lunatic or drunk as not to know what he was about when he made a promise or sealed an instrument. This special verdict hardly shows any such state of mind; but even if it did, the modern cases show that when that state of mind was unknown to the other contracting party, and no advantage was taken of the lunatic, the defence cannot prevail, especially where the contract is not merely executory, but executed in the whole or in part, and the parties cannot be restored altogether to their original position." It is evident, then, that "when a person, apparently of sound mind, and not known to be otherwise, enters into a contract for the purchase of property which is fair and *bona fide*, and which is executed and completed, and the property, the subject-matter of the contract, has been paid for and fully enjoyed, and cannot be restored so as to put the parties *in statu quo*, such contract cannot afterwards be set aside either by the alleged lunatic or those who represent him."[1] If an action is brought to recover money paid under a contract upon the ground of the plaintiff's lunacy, and the issue is, whether at the time of the particular transaction the fact of the paintiff's insanity was known to the defendant, evidence as to the plaintiff's conduct upon various occasions both before and after the date of the particular transaction, with a view to showing that the malady under which the plaintiff laboured, was of such a kind as would make itself apparent to the defendant at the time of the said transaction, will be admissible.[2] Yet a man, by bare execution of an instrument under seal, does not make it his deed, if, at the time of the execution, he was so weak-minded as to be incapable of understanding it when explained to him;[3] but a deed executed by a lunatic during a lucid interval is binding upon him, but the *onus* of proving that it was so executed lies upon the party claiming under the deed. Mere imbecility is not of itself sufficient to render void a contract, unless an appreciable incapacity of understanding and acting with discretion in the ordinary affairs of life results therefrom. Such incapacity, it has been said, affords the true test of what amount of unsoundness of mind will avoid a deed at law. While mere weakness of mind will not render void the contracts of the party labouring under this disability, it will be a material circumstance in establishing an inference of unfair practice, fraud, or imposition.[4]

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[1] Fletcher *v.* Peck; 1 Powell Contr., p. 234.

[2] 1 Powell, 235.

[3] 4 Exch. 17, affirming judgm. in S. and C., 2 Exch. 487.

[4] 4 Exch. 19.

[5] See Beverley's case, 4 Rep. 123 b., Co. Litt. 247 b.

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[1] Judgm. 2 Exch. 503. See also Dane *v.* Kirkwall, 8 Car. and G. 679; Brown *v.* Jodrell, 3 Car. and P. 30; Niell *v.* Morley, 9 Ves. 478; Alcock *v.* Alcock, 3 Mac. and G. 268; Tarbuck *v.* Bisphan, 2 M. and W. 2; Frost *v.* Bevan, 22 L. J. Chanc. 638.

[2] Bevan *v.* M'Donnell, 10 Exch. 184.

[3] Shelf, Lunatics, 2d edition, p. 338.

[4] Kent Com., 10th ed., vol. ii. p. 609. See per Lord Cranworth, C., 6 H. L. Ca. 45. See also Story, sec. 234–238; Longman *v.* Ledger, 2 Gif. 157; Nottedge *v.* Prince, 2 Gif. 246.

Did we not say that our laws grew and were not made? and does not even the above sketch of their progress in one direction bear out the assertion? Are not clothes best shaped by the nimble fingers of "wear?" and have not our ancestors been the living models that these our laws have been shaped on? Are we not gainers in comfort by their pains? Who has not considered that it would be the height of luxury to have some one with feet like our own to wear our new boots for us? and have not our great ancestors, with feelings very like our own, worn our new laws for us until there is some comfort in them. Yet our ancestors are at the wall in these days. We thank them for nothing but the anomalies they left, which we have to do away. This is a future-looking age.

The greatest difficulty as to a satisfactory definition of insanity has arisen in connexion with criminal cases. It is laid down in our criminal law books that a wrong intent, or something equivalent thereto, is an essential element in crime, and there is no word, the meaning of which it is more important clearly to understand, than the word "intention" in its relation to the criminal law. "Intention" in this relation is not simply purpose or design. It is clearly distinguishable from motive, which is, as it were, the goal of an action. Yet, while it is distinguishable, it is not always distinguished. The fact that the motive which led to the commission of a certain act is one of the most prominent points in the proof of the intention, has only too frequently produced some confusion of thought. But it must be remembered that it is the "intention" and not the "motive" which gives in law the character and quality to an act. And it is essential to bear in mind the fact, "that the intention to do the act exists for all criminal purposes where it is wilfully done, although the act itself was merely the means of obtaining some ulterior object."[1] For example, if a man removes a piece of property from another's house without the consent of the owner, with the intent to convert it to his own use, and thereby despoil the owner of it, in that case he is guilty of theft. If, however, he takes it, believing it to be his own, or with the intention of returning it anon, he commits a trespass, but is not guilty of theft. And if he takes it in a case where he is justified by law in so doing, as in distress for rent due by the owner of the article, he is not guilty of theft, neither does he commit a trespass. In each of these cases the act done is the same, but the intention varies the legal consequences of the act, and it is by the intention that the question whether the individual has subjected himself to civil or criminal consequences, or whether he shall be regarded as altogether innocent, must be decided. In certain cases, however, the statute law[2] has declared that such and such acts shall be criminal, and has associated with a proof of the commission of the act certain penalties. In such cases an inquiry as to the intention of the party is not of the same primary importance. In another class of cases the legislature has thought it prudent to declare that there shall be a presumption of criminality associated with the commission of the act, and in that way throws upon the party proved to have committed the act in question the *onus* of proving that it was done with an innocent intent. In the third class, however, the intention of the individual is of the most material importance, and, in order to secure a conviction, the criminal intention must be satisfactorily proved. It was laid down by Lord Mansfield as generally true[1] that, where an act in itself indifferent, if done with a particular intent, becomes criminal, there the intent must be proved and found by the jury; but where the act is in itself unlawful, the proof of justification or excuse lies on the defendant, and in failure thereof the law implies a criminal intent. A "guilty mind" is, however, as we have seen, essential to the conception of a crime in a very large class of cases;[2] and a "guilty mind" is said to be present in every case of intentional or voluntary wrong where the mind is actively in fault, and also in those cases where the mind, although not actively in fault, is yet the cause through its passivity—it may be by neglecting to exercise sufficient caution—of some hurt or damage. Having considered the meaning of the word "intention" as understood in law, we return to the statement that a wrong intent is an essential element in crime, and the question as to how this intention is to be proved. In our law the jury are justified in inferring the intent from overt acts, because every man, as well in criminal as in civil[3] procedure, must be taken to have intended that which is the necessary or natural consequence of his act; and, said Lord Ellenborough, Chief Justice,[4] "When a man is charged with doing an act, of which the probable consequences may be highly injurious, the intention is an inference resulting from the doing of the act." And Littledale, J., has laid down the principle that if a result be the probable consequence of an act, the doer is answerable as if it were his actual object. "If," he went on to remark, "the experience of mankind must lead any one to expect the result, he will be answerable for it."[5] It is quite evident that a man's motives and intentions, which are hidden things, can only be inferred from his acts and words. Acts are the language of motives, as words are of thought. It is, of course, impossible to punish mere intention, and it is only when the intention becomes, as it were, the fœtus of the act, in an attempt, that the law can take cognizance of it. The intention is, indeed, a bird's-eye view of the act. You can only judge of it in law when the act is done, as you can only judge of the bird's-eye view when you are above the plane. We are now in a position to consider the capacity to commit crime. The statement of the proposition, that the criminal law looks mainly to the intention which actuated the accused, has been said[1] to "imply the presumption that the individual whom it is sought to bring within the operation of the law has mental capacity, is a free agent, and possesses the power of electing to abstain from what is forbidden rather than suffer the consequences of offending;" and the criminal law of England therefore declines to punish where the actor, from want of understanding or mental disease, is not in a position to choose freely; and it might properly be added, where, through such enfeeblement or derangement, motives have lost their power of making a man choose the good rather than the bad, and the pleasant rather than the disagreeable. It is the same principle that induces the law to exempt very young children from the criminal responsibility of their acts; and the same principle is to be found as the reason for the non-infliction of legal penalties where the individual is, against his will, compelled to do a wrongful act, inasmuch as the dread of distantly future penalties cannot in reason be expected to prevail against the fear of present suffering. Were it more generally understood—were it more thoroughly appreciated—that it is really the same fundamental principle which induces the law to forego its penalties, even after proof of the criminal act done in these two classes of cases, less difficulty would undoubtedly arise in practice as to what amount and what kind of insanity is sufficient to establish a claim to immunity from punishment. Were it once held that the proof of that amount of insanity would relieve from the consequences of a criminal act which deprives the individual, either by amentia, dementia, or mania, of that amount of free will or choice—of that power to balance and appreciate motives which is found in the ordinary ranks of mankind,—were it held that the amount of insanity which deprives a man of this, as the amount of duresse which deprives a sane man of the same power,—would relieve an individual of criminal responsibility, no doubt could, it seems to the writer of this, in any case arise. In the examination of a case where duresse is pleaded, as in the case of a crime committed by a *femme couverte*, acting *sub potestate viri*, as an excuse or criminal misconduct, special circumstances may be given in evidence to repel or support the presumption of coercion. In a case of alleged insanity, then, if the individual suffering from enfeeblement of intellect, delusion, or any other form of mental aberration, were looked upon as, to the extent of this delusion, under the influence of duresse (the dire duresse of self), and in so far incapacitated to choose the good and eschew the evil, in so far, it seems to us, would the requirements of the law be fulfilled; and in that way it would afford an opening, by the evidence of experts, for the proof of the amount of self-duresse in each individual case, and thus alone can the criterion of law and the criterion of the inductive science of medical psychology be made to coincide. Several well-known cases indicate under what circumstances persons *non compos mentis* will, in relation to the criminal law as it at present stands, be held irresponsible.

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[1] Cr. L. Com., 4th Rep., p. 15.

[2] See 24 and 25 Vic., c. 96, sec. 58.

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[1] R. *v.* Woodfall, 5 Burr. 2667.

[2] See (*ex gr.*) Reg. *v.* Thomas, 1 S. & C. C. c. 313.

[3] Per Cresswell, J., 12 C. B. 98; per Jervis, C. J., Id. 103, cited Arg. 8 Exch. 229.

[4] R. *v.* Dixon, 3 M. and S. 15; R. *v.* Philip, 1 Mor. cc. 263, 274; Reg. *v.* Hill, 8 Car. and P. 274. See Broom's Com., p. 866, *note*.

[5] R. *v.* Moore, 3 B. and Ad. 184, 188.

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[1] Broom's Com., p. 869.

It is to be remembered that the aim and object of civil punishment is *to deter*;[1] and it will be useless, with regard to its end as looked at in relation to others than the criminal himself, if they through mental defects are unable to appreciate its meaning and nature, or are coerced by some overruling principle which is equivalent to the overmastering dread in the definition of duresse. In similar cases the punishment will, of course, fail—except in the case in which punishment, once for all, deprives of all power to exercise the will—of its second end or object, according to Beccario, that of deterring the criminal himself from again committing the same crime. But to say that in no case of insanity will the fear of punishment or the hope of reward deter the criminally-disposed lunatic from committing a crime, is to say what is denied by the experience of every director and superintendent of the insane throughout this country, who are in the daily habit of enforcing a code of discipline with the view of maintaining internal order in the establishments under their control; and to assert what no one in this country who has the least knowledge of the subject will believe—viz., that mental unsoundness is incompatible with crime. Indeed, cases come every day under the cognizance of those who have to do with the insane, in which the criminal act is entirely beyond the sphere and influence of the reigning delusion, and, accordingly, in so far as that delusion is concerned, the product of a sound mind.

In order to illustrate the above statement of what we understand the law to be at the present time, and as further indicating to what extent and under what circumstances we imagine mental derangement or insanity might, in the eye of the law, excuse from the ordinary consequences of crime, we will allude to one or two cases.

In the Hadfield case,[2] a trial of an individual for shooting at the king in Drury Lane Theatre in 1800, Mr Erskine said, "It is agreed by all jurists, and it is established by the law of this and every other country, that it is the reason of man which makes him accountable for his actions, and that the deprivation of reason acquits him of crime." By the same case, the principle, that in order to exempt from the consequences of a criminal act it was not necessary to prove a total deprivation of memory and understanding, which, up to that time, had been the tenet, was firmly established. But the law has been censured much and often because it has refused, provided a man be *non compos mentis*, to measure the degree of his capacity. And yet the difficulty of measuring every man's capacity, and the rigorous adjustment of the punishment to the amount of criminality, is so great,—nay, so

[1] Beccar. Cr., cap. 12.

[2] 27 How, St. Tr. 1309-1310.

thoroughly beyond the power of any tribunal,—that the law has very properly refused to attempt to gauge guilt and accurately apportion punishment. When the legislature determines that a certain punishment shall be associated in all cases with the proved commission of a certain crime, to demand the weighing out of a so-called justice as we weigh out pounds of sugar, is absurd. When law says a man shall be hanged by the neck till he is dead, and two men, A and B, suffer this extreme penalty of the law,—is that the same punishment to A, who has just come into life with a million possibilities which the incubating future may hatch; and to B, whose possibilities have turned out addled, or at best chalk eggs only, there to make him lay? Why! some men would drain the veins of children to live through their death, while others are glad to be hurled

> "Anywhere, anywhere,
> Out of the world."

Can we mete out justice? Is it not for heaven to do justice? is it not for the law to prevent crime? And the way to do so is not to attempt to apportion punishment to every individual crime, but to prescribe a certain penalty as an all-sufficient motive to keep all sane men from the commission of the crime in question. Because A is a man with a calibre infinitely less than that of B, he is still in law held to be bound by his contracts, responsible for his acts, and may exercise all the privileges vouchsafed to a citizen of the state to which he belongs. That there is a higher law which demands greater probity from the one than from the other—that there is a higher law which makes the true responsibility of the latter greater than that of the former, and renders the privileges of the one who has the capacity of higher enjoyment infinitely greater than those of the other—may be true; but that such law is not the law of England is a fact, and that, even if it were possible, it is well that it should not be the law of England, is quite capable of proof. While it is admitted that gratitude and charity, kindness and goodness, are of the highest importance to the welfare of the individual and the community, yet, even by the equity jurisprudence of this and of every other civilized nation, they are left to be enforced *in foro conscientiæ*, upon account of the difficulty of framing any general rules to meet matters of that kind, and from the mischief and inconvenience which would arise from attempting to enforce such duties. From similar reasons, and for the paramount reason that laws are for the prevention of mischief, the legislature has refused to graduate responsibility; and he alone, in the estimation of our criminal law, is irresponsible who is *non compos mentis*. We have, however, already pointed out that it is not every degree of insanity which exempts from punishment on the ground that its existence is inconsistent with the criminal intent. Many men are affected by one delusion, and to say that such men could in no way commit crimes—to say that the existence of epilepsy would render the victim of *petit mal* irresponsible for his act in case he forged or stole—and some medical men have gone so far as to hazard assertions of a similar kind—is as absurd as to demand that all criminals shall be looked upon as under the influence of diseased organism, and that they should be treated with the leech or the lancet, or any system of medicine that may for the time being be in vogue, rather than with the tread-wheel or pillory. We can't get ordinary common-sense people to believe that every man steals just because he can't help it, and that virtue is just as much a necessity of some organisms as the expiration of hydrogen is of others. No! Common-sense people are pig-headed, and think that if an ordinary man kicks you, and you thrash him in consequence, and give him to understand that the next time he raises his foot with a similar intention you will repeat the chastisement,—those pig-headed common-sense folk have an idea that, in most cases, the individual's organism will *not* force him to raise his foot again. Those pig-headed people believe that it is possible to supply motives to those people who do not see that it is for their own interest to respect their neighbours' feelings and property, and that government, as the motive administrator, can, in most cases, give considerable security by this means to life and property. And, strange to say, the principle of the law in declaring certain punishments with the view to preventing mischief—which is ultimately reducible to pain—is precisely the same as that which actuates those pig-headed people who are guided by common sense. Now, it has seemed reasonable to the law that, seeing that the insane are really, for many purposes, sane—and we are told by medical men of lunatics with whom you may converse for hours without discovering the fact of insanity, and these lunatics are evidently for the purpose of the said conversation sane,—we say, it has seemed reasonable to the law that as lunatics are sane for many purposes, they should for those purposes be looked upon as sane. Thus the law allows a man, although labouring under delusions in certain cases, to give evidence on a criminal trial in a court of law, and in this respect it treats him as accountable; and it is evident, as Alderson, Baron, observed,[1] that a man may be *non compos mentis quoad hoc*, and yet not *non compos mentis* altogether. In the M'Naughton case,[2] the accused was charged with murder, and the defence of insanity was set up, as there could be no doubt as to the fact of the wilful homicide. The prisoner was acquitted; and this case led to a discussion in the House of Lords, which resulted in a series of questions being proposed to the Judges, and from the answers which were given to those questions the degree of criminal responsibility attaching to one affected with mental disease is to be ascertained. The first question was—"What is the law respecting alleged crimes committed by persons afflicted with insane delusions in respect of one or more particular subjects or persons; as, for instance, where at the time of the commission of the alleged crime the accused knew he was acting contrary to law, but did the act complained of with a view, under the influence of insane delusion, of redressing or avenging some supposed grievance or injury, or of producing some supposed public benefit?" The answer given to this question was, that a person labouring under such partial delusion, and not being in other respects insane, although he did the act complained of with a view, under the influence of insane delusion, of redressing or avenging some supposed grievance or injury, or of producing some public benefit, is nevertheless punishable according to the nature of the crime committed, "if he knew at the time of committing such crime that he was acting contrary to law,"[1] *i.e.*, the law of the land. We shall return to the answer given to this first question; in the meantime, we proceed to consider what other lessons in the eyes of lawyers these answers teach. The second answer sets forth that every man is presumed by the law to be sane, and to possess a sufficient degree of reason to be responsible for his crimes until the contrary be proved to the satisfaction of the jury, and that this legal presumption must be brought under the notice of the jury in every case where an individual alleged to be afflicted with insane delusions respecting one or more particular subjects or persons is charged with the commission of a crime, and insanity is set up as a defence. And, in conformity with the rest of the answer to the second question, the proposition which comes before the jury, and the question they have to decide, is, whether the party accused had a sufficient degree of reason to know that he was doing an act which was wrong. The third question was not answered. The fourth was: It is a question of frequent occurrence in criminal courts, whether a person who, under an insane delusion as to existing facts, commits an offence, in consequence of such delusion he is to be held excused; and the answer ordinarily given is similar to that given by the Judges, that if the individual accused of the crime labours under a partial delusion only, and is not in other respects insane—and that such cases do occur is admitted by every medical witness—he shall be considered in the same situation as to responsibility as if the facts with respect to which the delusion exists were real. Thus, if a man is under the impression that another is attempting to take his life, and if it can be shown that any act upon the part of the latter—taking into consideration the form of the manifestation of his insanity—was calculated to induce the former to believe that his death was really compassed, and he thereupon kills the man, as he supposes in self-defence, in that case he would be exempt from punishment; or where a man is under the belief that his wife is unfaithful to him, and he kills her supposed paramour under the influence of insane jealousy, in this case, it would appear that the homicide would amount only to manslaughter, and not to murder. If, on the other hand, a man believed that a neighbour had insulted him, and it could be proved that the individual was not in other respects insane, and, in consequence of this delusion, the individual killed his neighbour in revenge for the supposed insult, he would, according to our law, be liable to punishment; and, although many medical men have argued that punishment, under the circumstances above supposed, would be unjust, it seems to us, remembering that the law is not merely a committee of the lunatics who live under it, but is, as it were, the trustee for the whole community, and that its duties to sane men are not less important—nay, seeing that, as yet, sane men are more numerous than insane men, more important to the sane than to the insane members of the community—that the law, as it stands at present with regard to the responsibility of individuals under the influence of an insane delusion as to existing facts, is satisfactory. We are, however, unable to use the same terms with reference to the first and second answers of the Judges that we have used with regard to the fourth. Indeed, those answers, which may be regarded as the authoritative statement of the criminal law in its relation to insanity, are not in accordance with the best scientific opinions; and looked at in the light of modern science, the definition of what shall be regarded as insanity in criminal cases is eminently unsatisfactory. To hold that a person who commits an act under the influence of an insane delusion with the view of avenging some supposed injury, or redressing some supposed wrong, is liable to punishment, if, at the time of committing the act, he knew he was acting contrary to law, is almost equivalent to declaring that the plea of insanity shall not be pleaded in criminal cases, and is certainly not a great advance in the way of legislation upon Lord Lyndhurst's[1] definition of responsibility, viz., the belief of the accused that his act was not a crime against the law of God and nature, or on the still older definition of Lord Coke, "that to protect a man from criminal responsibility, there must be a *total* deprivation of memory and understanding." It is almost invariably the case that the accused person was fully aware of the heinousness of the act, and is, at the same time, aware that it is peremptorily forbidden by the law of the land as well as by the law of God and nature; and yet the act is done under the influence of an insane delusion and impulse which the individual has no power to resist. It is unnecessary to accumulate evidence upon this point. The medical witnesses who come before our courts of law in those days, with a more thorough and scientific knowledge of the human mind in its healthy and diseased conditions, are at one upon the point just stated. Further, it seems to us that this, the answer to the first question, is, in a true sense, incompatible with the answer to the fourth. Why an individual labouring under a delusion as to an existing state of facts—for instance, the attempt upon his life—

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[1] 2 Den. C. C. 260.

[2] 10 Cl. and F. 200. See Reg. *v.* Townley, 3 Frost. 839.

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[1] 10 Cl. and F. 209.

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[1] Rex *v.* Offord. See Mansfield, C. J., in Rex *v.* Bellingham.

should, if he commits a criminal act in direct consequence thereof—as killing an individual in supposed self-defence—be held to be irresponsible; while an individual afflicted by an insane delusion in respect of some particular subjects or persons—for instance, believing that an individual was the devil in person—should, if he commits a criminal act in direct consequence thereof—as maiming the individual he supposed to be the devil, in accordance with that higher law which encourages resistance—because he knows that assault and battery is contrary to law, be held responsible, it is very difficult to say. The distinction as to a delusion concerning an existing state of facts, and in respect to one or more particular subjects or persons, is, we suspect, worth nothing. To assert that a man can be afflicted with an insane delusion with respect to one or more particular subjects or persons without, at the same time, having erroneous impressions with respect to an existing state of facts, seems to us absurd. And as to the knowledge of the accused that the act was contrary to law, we have only to remark that, in the case where he believes a neighbour is attempting to deprive him of life, and he kills him—or in the case where he believes his wife is unfaithful to him, and he kills her paramour,—in both of these cases he is perfectly conscious that he is acting contrary to law; but the higher law of self-defence, or the protection of his honour, excuses the individual proved to be labouring under a delusion with regard to the facts from the consequences of a breach of the law of the country in which he resides. In many cases that could be put, in which an individual is afflicted with a delusion as to one or more particular persons or subjects, it will be found that, although the individual is conscious that a law forbids the act, yet some more peremptory mandate—it may be the voice of God, or an impulse as irresistible as that which makes a man draw his hand away from a burning brand—overcomes the voice of the municipal law, as a thunder-clap drowns the still small voice. God may be in the latter, and the devil in the former, but the human ear hears the roar and does not hear the whisper!

Further, the principle laid down in this answer seems to us to be at variance with the dicta of several very able Judges, above quoted,[1] with reference to the proof of intention. In many cases we saw that intention to commit crime was to be inferred from the acts of the accused, and Lord Ellenborough, Chief Justice, laid it down as a universal principle "that, when a man is charged with doing an act of which the probable consequences may be highly injurious, the intention is an inference of law resulting from the doing of the act." And we saw that Littledale, J., explained that "the probable consequences of an act" were to be judged of by the ordinary "experience of mankind." In any case, then, it occurs to us, in which a delusion respecting one or more particular persons or subjects, or in which mental enfeeblement incapacitated the accused from appreciating the experience of mankind, and in that way incapacitated him from anticipating the consequences of his act, the individual should be held incapable of committing any of that class of crimes in which proof of intention is necessary to the conviction. But, upon the other hand, it does not seem clear to us that, in all cases, the same class of persons should be exempted from the legal consequences of their acts when they fall within that class of crimes which the statute law expressly declares to be such, and in connexion with which it has further declared that a certain punishment shall be inflicted.

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[1] Page 207, etc.

A German jurist,[1] appreciating the weight of the medical testimony in criminal cases, has maintained that two conditions are required to constitute that freedom of will which is essential to responsibility—viz., a knowledge of good and evil, and the facility of choosing between them. This definition is perhaps more nearly correct than most that have been given; but it seems to us, looked at in reference to the most recent philosophical researches, and also in relation to the duty of the law to protect the sane from injury, as well as to protect the insane from unnecessary useless punishment, that the best definition that can be given of legal responsibility is a knowledge that certain acts are permitted by law, and that certain acts are contrary to law, and combined with this knowledge the power to appreciate and be moved by the ordinary motives which influence the actions of mankind.

If a man has no sense of pain, he will not learn to dread the fire by being burned. If it is the same to a man whether he take asafœtida or sugar into his mouth; if it is the same to him whether his neighbours praise or disparage him; if it is the same to him whether he have or have not liberty,—then any of the laws that are at present in force in this and in other civilized countries are utterly inapplicable to him, and, as they do not apply to him, he is not responsible to them. But if a man, be he sane or insane, is capable with regard to the act in question of being deterred by fear of punishment—if, like the ordinary criminal, it was a belief in the probability of escaping detection that weighed on the side of committing the act—if it was mainly the ordinary motives which led to the commission of the crime, and if a preponderance of ordinary motives would have deterred,—then the criminal laws of this land are applicable to the accused, and he is responsible to those laws, and has no claim to be exempted from punishment on the ground of mental enfeeblement or derangement of intellect. It is to be remembered that a criminal code has been made with reference to those who are in many respects defective human beings. Certain penalties have been declared as the consequences of certain acts, and it is to be remembered that the law is excellent only where, with its punishments, it emphasizes the assertions of nature. Laws are for those who cannot see that their truest good lies in order;

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[1] Dr Mittermaier.

for those who are incapable of appreciating the fact that honesty and virtue and peace are the conditions of the greatest possible happiness. The wise man would not steal, whether there were a statute-book or no. The good man has a hundred motives for respecting the life of his neighbour besides the fear of a shameful death. But while the statute law supplies certain powerful and easily appreciated motives to guide the actions of those who are so weak as not to see what is for their real advantage—of those who have so little self-control that, without the fear of immediate punishment, they could not respect the property of their neighbours,—it does not, after prescribing one set of punishments for such classes, make, as it were, a second storey of the statute-book, and prescribe other punishments for those who, even with the motives supplied by law, are unable either to see what is best for them, or unable to restrain their desires, although conscious that punishment will follow. It confesses that there are certain classes to whom the law can supply no motive sufficiently strong to induce them to conform to certain rules, and it looks upon those persons as insane and as irresponsible; as punishment of those individuals would fail first in reforming the criminal himself; second, as deterring others of the same class from committing a similar offence: although it might, as an example, deter others, the law does not punish such persons, but contents itself by protecting the community from the commission of the crime again by the same individual. That the above is a sound principle on which to proceed in all cases to the determination of the question of responsibility—that it avoids many intricate metaphysical questions, utterly out of place in a court of law, as to the freedom of the will; and that it will tend to fulfil the true and full function of criminal legislation, will, we feel somewhat confident, appear from a thorough examination of the subject, and may even, we hope, be gathered from what has been said in this chapter.

ARTICLE IV.—*On Chloroform in its Medico-Legal Bearings.* By CHARLES KIDD, M.D., Member Royal College of Surgeons, England; Associate Surgical Society of Ireland; late Physician to Royal Westminster General Dispensary; writer of "Mirror of Hospitals" in *Lancet*, etc. etc.

SOMEWHAT in continuation of previous remarks on the use of anæsthetics in London practice, I would wish to draw attention in a little space to a few recent cases where what we may term the medico-legal aspect or bearing of chloroform had assumed a rather serious form or character owing to the inconsequence or ignorance of police-officers and juries as to the exact action of that agent. The nitrogen protoxide or "laughing gas," as I had anticipated in my last communication to the *Edinburgh Medical Journal*, has out-stripped all other anæsthetics for short operations, but for long operations surgeons must fall back on chloroform. Chloroform, in its medico-legal aspect, is a new subject of vast and growing importance; what confusion of ideas or syncope may happen where it has not been used; what as to its suddenness of action, what marks it leaves after death, etc. A case has occurred this year where a young surgeon (to the entire ruin of his business for a time) was committed to prison by a magistrate on the popular suspicion of a police constable and the loose information of a weak emotional girl, on the grievous charge of rape, supposed to be committed under chloroform, but where common syncope during the introduction of a vaginal speculum for a proper speculum examination had, in point of fact, given rise to mere confusion of ideas on the part of the prosecutrix, and this grievous charge against the surgeon. The question was very grave, and employed a judge and jury for eight hours. This impressionable girl could neither read nor write, but had often heard that chloroform acts in the twinkling of an eye. She had been accused by her friends of some sexual familiarity with a young man of loose habits, and to clear her character her father brought her to the surgeon to make a full examination so as to ascertain whether she was diseased or not; the father, it may be added, all the time sitting waiting for her in an outer surgery or room, separated only by a glass door from the apartment where the alleged crime was committed; the house itself, one of the smallest of the very many small houses that abound in the suburbs of London. It is almost incredible, as more than hinted by the able judge who tried the case, that on the first hearing the detail the police magistrate did not dismiss it, or at least did not allow the young man out on bail; and it is on this aspect of the question, and this alone, of imprisonment, that I would beg to bring it under notice of the more calm members of the profession.

Thackeray the novelist, Mrs Wood, and others, in their romances, have led juries and the public to believe that chloroform acts suddenly, like a flash of lightning, in a moment—that a man has only to open a bottle of chloroform, or present a handkercief with a few drops on it, *at* a person, and, as if by electric shock or magic, his senses are taken away. This may appear absurd; but then we are living at a time when people believe in table-turning, spirit-rapping, and so of impossibilities of chloroform. This young woman prosecuting in this instance, had in truth shown some signs of faintness as the speculum was being passed, partly from alarm and mental anxiety at the charge brought against her by her father and friends, and partly from accident not uncommon in vaginal or speculum examinations, that of fainting. The surgeon instinctively went in search of and obtained some smelling salts, asked her to smell them, shaking the bottle, as she said, when she went off insensible. We have here the confusion of ideas of the prosecutrix, and the helpless confusion of the jury and prosecution to disentangle. The prosecuting counsel set up a hypothesis that the smelling salts was chloroform (though the surgeon's assistant swore positively that the bottle containing smelling salts had not been taken out of the room till the police obtained it). The unhappy girl deposed positively to the commission of the crime, at least after her own impressions of what had occurred. At one moment she led the jury to believe she had been rendered suddenly insensible by the bottle "presented at her;" then that though insensible and faint, she knew still and felt the felonious assault made on her, swore positively to the surgeon's dress disarranged as he turned his back to go out to the outer surgery for the salts; and all this took place in about ten minutes at farthest, and two other patients had come into the outer surgery to get advice even during that interval.

The prosecuting barrister, a very acute reasoner, held to his hypothesis with wonderful tenacity; the police assuring the jury that such nervous girls, as a rule, are in the twinkling of an eye rendered insensible by chloroform, and very much quicker than other patients. Stress was laid on some slight bruising of the external parts in the girl, especially before the police magistrate; stupes and fomentations had been prescribed (if necessary to be used, but not necessary), all helping the proof that violence had been committed by the prisoner at the bar.

The case was obviously a very grave and grievous one. Mr Poland, the eminent surgeon at Guy's, gave evidence, agreed entirely with what I had previously deposed, that in cases of mucous discharge from the os uteri or suspected discharge, it was quite right to have used the speculum. That from alarm and anxiety the girl had got confused ideas; had partly fainted; that the bruising of the parts was slight, and due to the speculum; that it was against all his experience at Guy's, as against mine, that nervous girls are in the twinkling of an eye rendered insensible by chloroform, that as a matter of fact they were the persons most difficult to be brought under its influence, without delay and struggle of several minutes.

I am sorry to say, during two hours that the jury—a plain set of shoemakers, tailors, stablemen, blacksmiths—took to decide what was this syncope under the use of the speculum, and whether nervous girls in the twinkling of an eye are rendered insensible quicker than others,—in the two hours the jury took to decide whether this hapless young man should be transported to a penal settlement for five or seven years, his family ruined, his practice broken up—the rival doctors in court had decided that the case was too plain against the prisoner. One eminent medical reporter or journalist, whose views were since adopted in a paragraph as to "Good Advice" in a weekly medical, contended, as a piece of wit, that he would find him "Not Guilty," but with a caution never to be guilty again. The prosecuting barrister ingeniously took advantage of all this confusion of opinion, still holding that the girl's depositions were unshaken, and, taking advantage of what I had said as to the effect of an imperfect dose of chloroform leaving the girl's mind partly unclouded, he contended that this explained the case quite clearly.

The learned judge, in his charge, ridiculed the hypothesis as to chloroform, showed the jury that it was a popular or police-office fancy; and the "good advice" he gave the prisoner was, as to the *speculum*, the danger of its introduction being liable to be mistaken by ignorant emotional females, thus bringing surgeons to trouble. This prisoner, standing part of the trial alongside an alleged Chelsea murderer in a sensationalistic crowded court, with a nasty trial of men in women's clothes going on by fits and starts, the judge pitied very much; and, on letting him out of the dock, advised him never to use the speculum again without a third party present; as amongst illiterate young women, guided by their wild sensations, novel readings, and popular fancies (possibly their interests where they wished to shift the paternity of a child on to the surgeon), he was never safe; and specially so, if, as in this case, he and the young woman were for a considerable time together, and confusion of ideas and faintness had supervened. The case is one in every way of large importance, suggesting many facts and dangers for the medical man; for, indeed, as the learned judge said with much solemn pity, no man using a speculum without a third party present is safe.

Have we any, and what, indications medico-legal, in an alleged death from chloroform, suicidal or other, that chloroform has been used? Have we any constant quantity on which we may build or depend before a jury? I think there are, at least, some four or five points of importance very well settled.

Dr Richardson, adopting now the views of Lallemand, Perin, and Duroy, that I have held for many years, has quite recently admitted at last that the *right side* of the heart is the chief weak point; his further supposition that there would be varicose veins, etc., is a purely theoretic application of a hypothesis that practice does not unfortunately bear out; for, as a rule, of near 400 accidents now collecting from chloroform, the patients were in rude health; nor is his idea of a very helpful nature, that there will be always a certain number of chloroform deaths, because there is now a certain number or percentage even in the best regulated hospitals. Blood coagulates, says Richardson, because it does coagulate; that is the amount of our knowledge: chloroform kills, because it does kill. Try voltaic narcotism or ethylo-methylic ether. It is always a step in advance in the progression of knowledge to admit our ignorance; and, like Pythagoras, who made the world out of cubes and quantities, this school would have it that there is always a number of deaths, and must be. This is the pervading impression now in London; and that, therefore, in medico-legal trials, we practically know nothing about chloroform. I cannot see it in this light. I have studied, with my finger on the pulse, and watching the respiration and action of the heart, now over ten thousand patients during chloroform administration. I have never, in that number, seen a case of actual death, though I may have helped in preventing it in fifty cases. The human soul, said Pythagoras, is a fatality or fate of figures. So is virtue; and lawyer's justice is now three, then six, sometimes nine, but always a certain harmonic quantity, figure, number, or percentage. But this does not help us much. I have seen no actual death, during the death-struggle; but I have seen at least eight where I was asked to the inquest, and watched the post-mortem examinations. There is a right use of figures, and there is a wrong one.

I believe, rather, the deaths are all typical, of one or at least two patterns; *the right side of the heart always engorged*, when the post-mortem is made in the same manner, that of examining the pericardium and its contents first. A table of cases in the *British Medical Journal* this year is only misleading, as the autopsy in some cases was made by opening the head for brain disease first, letting the veins drain away, or taking the lungs out first, and stomach. Fatty heart, too, is not common in vigorous adults; and in more than one case where I was invited to be present at a post-mortem in hospital, a totally erroneous statement was sent by the operating student to the newspapers, copied into the medical weeklies, as to "fatty heart." While the mode of reasoning, that as there is a fixed number of cases of fatty heart, so always chloroform will have its certain deaths, gains popular belief.

But this mode of reasoning, I think, only engenders doubt; there is an empirical knowledge of chloroform that it is quite allowable to bring before a jury and judge. We must remember that chloroform is a new thing. Our knowledge of chloroform is as yet empirical; that is, not a thing quackish in itself, as too often set forth, a word which some instrument-makers bring out of their armoury when they want to frighten men; not a thing even known by experiment of sense (as sense is fallible), but something generalized from individual experience, as, for instance, a proverb might be. Thus, after carefully studying over ten thousand cases of chloroform, and reading nearly all that has been written on it, one comes to get accustomed to certain empirical facts that may not agree with the presupposed theories or popular notions from experiments on the lower animals. General observations, again, drawn from particulars are, as Locke says, jewels of knowledge of great store in little room, let us take care only they are not counterfeit; and so of chloroform, we have no need to add to the romance of Thackeray and the police the doubts of men not experienced in anæsthetics, who would have found this man not guilty, with recommendation not be guilty again; nor is hypothesis always reliable, as in this instance, as to varicose veins, or nervous patients, narcotized like a flash of lightning!

The methyl-ethylic ether, as an anæsthetic, introduced during the present year as entirely superior to the nitrous oxide, and at first represented by theory as by far the best of the carbo-dydrogen series, has not fulfilled the expectations of theory, and has fallen out of use before the more common anæsthetics of the chlorine series. I was severely cross-examined by this barrister, who had got a "smattering" of anæsthetics, as to whether this young surgeon may not have used this or some other anæsthetic. It was at first expected, from hypothesis, that it would produce anæsthesia, without the usual struggling, occasional congestion of face, muscular twitchings, etc., that attend the "chlorine series." It was stated, from preliminary supposition, that it would cause or bring on anæsthesia without loss of consciousness. Our medical societies were pleased and dazzled with the new field thus opened up. But, like the laws of voltaic narcotism or theory of blood coagulation being always due to escape of ammonia, theory requires the connecting influence of actual practice. And so I find my friend, Dr Bader of Guy's Hospital, a most careful observer, reporting that the struggle, congestion of the face, twitchings, were most alarming, and as an anæsthetic the methyl-ethylic ether was entirely useless.

In my little book on anæsthetics, I have given references to several cases of alleged rape in dentists' chairs where chloroform had been actually given; the women then, as subsequently discovered, labouring under painful and active menstruation at the time, but still only raving. Twenty years' experience tells one that the law of tolerance is a true thing: that mere experiments in suffocating animals are deceitful, as only part of the truth. We may not repeat the mistake of Orfila, who, on testing the effect of different foods, tied the œsophagus, and took the nervous injury attending the latter for pathogenetic action of harmless articles of food. Twenty years' experience tells that accidents are most frequent in the early stage: reflex action excited; alarm then active, rather than in deep anæsthesia. These, and many other habitudes of chloroform, help us on our way; but we must avoid the deductions of merely smothering animals in chloroform vapour ("syncopal apnœa" of Richardson).

Nor is anæsthesia only deficient oxidation, for nitrous oxide produces anæsthesia apparently by its excess of oxygen and disturbance of the normal function of the gray matter of the brain. A simple emotion of the mind may act on the uterus or stomach as to appetite; why not by some vital influence, too, on the heart half under the influence of chloroform? It is true, my friend Dr Gull dissuaded us from *vital* influences in some "Harveian" speculations; but we thus, too, lose sight of emotion, idiosyncrasy, higher powers of mind, even disease itself. Vaso-motor influence has been supposed to contract the cerebral capillaries from chloroform, and thus induce anæsthesia. I rather doubt it; such influence may perhaps attend epileptic coma or common sleep, but not anæsthesia from ether or chloroform.

The points dwelt on by me in the present trial were chiefly that, by holding in her hand a Preston salts bottle, even if it contained liquid chloroform, the prosecutrix could not be rendered insensible by it in a moment. Next, that there would have been an interval of struggle, sickness of stomach, inability to walk steadily for perhaps half an hour after; whereas it was sworn she walked or went at once straight to another surgeon the moment she left the apartment of this surgeon, as she said, to have herself "righted" (this surgeon adding nothing material to the evidence at all). Still, the jury had their doubts; the girl alleging at one moment she was insensible, but still knew of the crime that was being committed. It struck me, if she was insensible in a moment, the bottle would have dropped out of her hand; yet she stated that, though partly insensible, she held the bottle all the time, and shook it up as desired. The judge cross-examined her minutely as to the alleged crime. She had no doubt about it; her sensation told her it was not a metallic speculum in her parts; this was evidently the surgeon's finger, which it was admitted he had used for one or two minutes before having recourse to the speculum. An architect was employed to furnish the jury with a plan of the house, the two rooms, the furniture, etc.; but the judge from the beginning seemed to take the right view of the case, that chloroform was not used at all. The judge's "charge" was a most exquisite piece of reasoning, and saved the prisoner.

It is chiefly that one may correct some of these errors that one would strive to bring the experience of the Edinburgh, or Dublin, or American schools to bear on the question. It is deplorable that, from the mere popular suspicion of a police constable or magistrate, added to this hypothesis of a barrister based on this alleged philosophic assuming and priding ourselves on this mystery of chloroform, this ignorance of what it may or may not do, that a young man may be committed to jail, and barristers and attorneys fight a grim duel, as it were, in the dark with an advising chemist of the police and a jury of innocent tradesmen, the prisoner all the while innocent, but with about equal chances against him that the jury will find him guilty.

What practical advantage is there in telling a jury that you cannot distinguish between the syncope of ordinary faintness and the syncope of chloroform; that under small doses of chloroform they are identical; that under ethylo-methylic ether this young woman could have had her consciousness preserved though she would be insensible to pain, which is simply not true; or that we cannot explain chloroform deaths at all?

And we have two sides to this question, too; we have cases, as these seven or eight instances of patients of dentists, where chloroform was actually given; but from some easily conceived association of the nisus or effort of the uterus and ovaries during menstruation with the brain, the idea furnished to the individual woman was that of felonious assault, that possibly might not occur but during this condition of menstruation.

These alleged cases of rape one and all were morbid sensations, but juries require much disquisition before they believe it is so; in fact, the evidence of any person recently confused by chloroform as to what took place then, should never be received in a court of justice. In the painful case of poor Mr Toynbee, who was found dead, having inhaled a mixture probably of chloroform and hydrocyanic acid vapour, the case was different; but the same misrepresentation and popular fallacies were encouraged in a portion of the press, only one side permitted to appear. Much anxiety was felt by some neighbours and friends before the inquest. The question, so painful, of an aural surgeon suddenly taking prussic acid and chloroform, coupled with newspaper headings of suicide, travelled over the kingdom, just as the "Good Advice" in the previous case, that the surgeon was not guilty, but a caution was necessary he should never be guilty again, or use chloroform with felonious intent, when the judge and the jury had given their opinion to the contrary most emphatically, that the chloroform hypothesis was a pure delusion of the prosecution.

Mr Solly, who acted very kindly on this occasion for the widow and orphans of Mr Toynbee, when the most cruel hints were abroad, called on me. I was able to inform him that it had come under my personal observation that poor Toynbee had been for some months trying experiments with chloroform by inhalation in small doses, to discover its effect on the Eustachian tube. I had not at the moment heard of the death, and the inquest was to be held in a few hours. It was a very painful scene. But the very candid men and scoffers were there also. I was able to mention to the jury the name of a lady, a patient that I had taken to poor Toynbee half a year before, with what I conceived nervous deafness, wishing him to try electricity, which he pooh-poohed, but strongly advised her to try inhalation and internal use of chloroform, which I had done with some benefit. I had a long interview with him then, and usually on meeting him, which I did pretty often in Savile Row, used to have a conversation about this lady's case, and what further new facts were abroad as to anæsthetics, as to which he seemed to inquire very often. All this pretty well convinced both coroner and jury, though the erroneous idea of his suddenly getting chloroform and committing suicide was continued in the journals and newspapers, helping, unhappily, this confusion of ideas that exists in the English mind as to the readiness with which chloroform acts and kills. Fatty heart always present, voltaic narcotism preferable, or ethylo-methylic ether.

The body of the deceased presented all the usual appearances of one who had accidentally died while inhaling chloroform. His notes at the side of his couch showed he had been studying its effects on the Eustachian tube; the body was like that of the son of one of the surgeons at our chief hospital, who also died while inhaling chloroform for agonizing tic doloureux. The details of this case given at the time, with the equally exact particulars of six other cases of coroner's inquests of a like kind, where I attended or had seen the post-mortem, have led me to conclude that much is to be learned, much corrected: as old coins are curious to the numismatist rather than for present use, so these old curious dogmas as to pneumonia cured by bleeding, voltaic narcotism, phlogiston, life being only caloric, escape of ammonia the cause of loss of irritability in blood, chloroform death always from fatty or diseased heart, will be kept as relics rather than for value or usefulness; so also, too, of the popular notion of romances learned by the innocent young woman in the preceding case, that chloroform acts instantaneously like electricity, for it was painfully evident during the trial that this poor girl believed firmly all she alleged, especially the suddenness of the chloroform action on "shaking the bottle."

Nor must we forget the incidental casualties that may be mistaken for deaths from chloroform. We must not forget that, before the discovery of anæsthetics, occasional patients died suddenly on the table from fright, while the surgeon was only preparing to make the first incision in lithotomy, which, if it had happened thus under chloroform, would have been ascribed to that agent. Patients, too, may die in a similar way from tearing of tendons in reducing dislocations or passing a catheter, or the sudden relief of a long-strangulated hernia, either with or without chloroform. But it would be unwise to ascribe all the mischief to the chloroform. The distinction is too fine, perhaps, for juries, but the knowledge of the fact in court might benefit a surgeon accused of malpraxis, or save the character of chloroform itself.

Let it be remembered that in an English court the accused cannot utter a single word, though he may be an intelligent surgeon, as in one of these cases, and must know what is urged by a hypothetic barrister in gown and wig is purely imaginary. A witness, too, must not speak, though I have heard, *arrectis auribus*, a juryman observe that, "right or left side of the heart, it was all the same to him; there *was* diseased heart—that was pretty plain; and the surgeon should have known it by the pulse, even if it was the 'right side,'" the learned coroner assenting, and leaving a St Pancras audience delighted with their own acuteness, that there was malpraxis after all, and diseased heart; the only fact here being that there was a clot with great engorgement of the right side, none of the left, where the pulse must have come from; but malpraxis was pronounced. The barrister in the other case, in his address to the jury, puzzled and dazed them with my "accurate description," as he termed it, of the "confusion of ideas and syncope resulting from small doses of chloroform." The affidavits and briefs, and "his lordship's notes, would tell them," he continued, that the woman had had but a small dose, and resulting syncope or confusion, but quite enough, as my book, too, admitted, for her to know well what was going on, though anæsthetized! whereas, what I believed and said was, that chloroform had not been used at all, and that any faintness was from emotion and the speculum. But, of course, I could not say a word, or I would be committed for contempt of court, as in the other case, when I remarked that the pulse came from the left side of the heart, not the right, and there was no malpraxis. The juryman, a decent shoemaker, said he didn't care, "left or right, he would rely on the depositions sworn in the case, and they must be more accurate: left or right, it couldn't make much difference; it was diseased heart all the same!" And so, what with the romance of Thackeray, the credulity of the police, and the clever sophistical reasonings of counsel and coroner's juries, one has to keep his mind clear. I think, in conclusion, the following five points are deducible from an increasing experience of chloroform:—

1. Dilatation, or rather engorgement, of the right side of the heart, may be calculated on if the post-mortem be made correctly, and the patient may not have died of simple syncope rather than this apnœa.

2. The chloroform may be recovered by distillation from the blood and lung-tissues. In this it differs, perhaps, from nitrous oxide, now used in thousands of cases of short operations in place of chloroform.

3. Chloroform acts slightly on the blood-corpuscles, they being jagged or crenated at the edge, while ether breaks them up; the lungs are, however, usually anæmic or pale under chloroform.

4. Chloroform is more fatal in the struggling stage, or if there be signs of delirium tremens present.

5. Great caution should be observed in believing the confused ideas of women menstruating at the time of having chloroform.

The negative signs that chloroform has not been used will be based on the foregoing considerations and others, as in the previous cases, where the patient has had no sickness or struggle, and has walked away at once out of an apartment, quite collected and clear in her mind. Chloroform with suicidal intention is usually taken in the fluid form, when symptoms of gastritis rather than narcotism are induced. A man in a London hospital tried to drink four ounces of chloroform, but the stomach-pump was soon set to work—he recovered; but other patients have been killed by as many drachms, where the full action of the poison had supervened.

I was consulted as to a very melancholy and important case in the country—another surgeon found dead. The insurance office refused to pay the policy, as it was supposed he had drunk a large poisonous dose of chloroform; the journals, again copying the newspapers, were most cruel; but from absence of gastro-enteritis, and the fact of both sides of the heart being full of blood, it was quite clear a great injustice was done. But the glamour of fine words, the dreamy fatalism of figures, fatty heart, etc., again was on the side of the insurance office. An utterly ignorant discussion was carried on in the local country newspapers, which ten lines from an authoritative medical weekly would have stopped—a discussion like that of the St Pancras jury already referred to. But the medical weekly most interested, taken up with long articles on cheap wines, earth-closets, voltaic narcotism, etc., just at that time as with "good advice" now, only added to the confusion, so that really one can partly understand or excuse the sad scene and ignorance of the jury, police, and coroners in the various cases the subject of this I fear tedious communication. It is well, however, to smile occasionally at folly. "He is a deal too fair," said one of a jury of this kind once of an able chief-justice; and so of the men who would have found this surgeon or the other guilty though innocent.

ARTICLE V.—*Legislation for Inebriates.* By W. LAUDER LINDSAY, M.D., F.R.S.E., Physician to the Murray Royal Institution (for the Insane), Perth.

WHILE engaged recently (May 1870) in an inspection of types of the best Hospitals for the Insane in the United States and the Canadas, I happened to visit the "Belmont Inebriate Retreat and Private Lunatic Asylum," near Quebec, in Lower Canada. In the course of conversation with Mrs Wakeham, the wife of the resident proprietor and physician (who was himself from home, and who formerly held office in the large quasi-public asylum of Beauport, near the same city), I was much interested to find that the province of Lower Canada was just then passing into law a Bill legalizing what seems to me proper provision for the management of *Inebriates* and their affairs. A copy of the said Bill was kindly placed at my disposal. It is so admirably adapted to meet, with local modifications, the special requirements of Inebriates in all civilized countries—and so closely represents views which I have held for, and repeatedly expressed during the last, fifteen years,[1] as well as, in spirit at least, opinions held by the most eminent physicians in all parts of the world where habitual drunkenness is one of the prevalent social evils —that I venture to introduce this Canadian Bill to the notice of those who are interested in the subject in Britain. I had originally intended making it the mere text of a résumé of my own opinions as to the treatment of Inebriates, including a commentary on the modifications which are desirable in adapting it to their legal position in this country. But such a résumé and commentary require a little time: while I am induced *at once* to bring the Bill itself before the British medical public,[2] in the hope that the existence of such admirable provision for the management of Inebriates in one of our own colonies may contribute towards the realization of the many hopes that are centred on the Bill recently[1] laid before our own Parliament on the same subject by Donald Dalrymple, M.P. for Bath.

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[1] Thus, in the 30th Annual Medical Report of the Murray Royal Institution, Perth (for 1857, p. 13), I advocated the establishment in Britain of Inebriate Retreats on the plan of some of those in America; while, in an article on "Lunatic Asylums," in the Scottish Review for April 1857 (pp. 155-7), I discussed somewhat fully the medico-legal relations of Habitual Drunkenness.

[2] My paper was hurriedly written in July (1870), while the Dalrymple Bill of the present session was being introduced.

"*Example* teaches oft where *precept* fails;"

and it may be that, though *precept* has unfortunately hitherto failed in Britain in fortifying our lawgivers to what is a very necessary interference with the liberty of the subject, the good *example* in this respect shown by the United States and Canada may have its salutary influence!

The Canadian Bill, towhich I have above referred, is as follows:—

PROVINCE OF QUEBEC [LOWER CANADA].

ASSEMBLY BILL, No. 24 (1870).

"*An Act to provide for the Interdiction and Cure of Habitual Drunkards.*

"Whereas the drunkenness of certain heads of families, and other persons of full age, and of other persons fully enjoying civil rights in this province, has heretofore on many occasions been the cause of ruin to their families, and of grievous injury as well to their relations as to their creditors: And Whereas, in the interests of society, it is necessary for the future to remedy such evils: And Whereas experience has shown that drunkards who appear most incurable may often be reclaimed by a reasonable and regular course of treatment, and that such course of treatment can be efficaciously pursued only in institutions organized for the purpose: Therefore Her Majesty, by and with the consent of the Legislature of Quebec, enacts as follows:—

"1. On petition, under oath, presented to any one of the Judges of the Superior Court for Lower Canada (who alone shall have power to act) by any relations, whether of blood or by affinity, or, in default of relations, by any friend, of any *habitual drunkard*, setting forth that, by reason of such drunkenness, such habitual drunkard either squanders or mismanages his property (or places his family in trouble or distress, or transacts his business prejudicially to the interests of his family, his friends, or his creditors; or that he uses intoxicating liquors to such an extent that he incurs the danger of ruining his health and shortening his life thereby); such judge, for any such reasons established before him to his satisfaction, may pronounce the *interdiction*[2] of such habitual drunkard, and appoint a *curator* to him to manage his affairs and control his person, as in the case of one interdicted for *insanity*.

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[1] 6th July 1870.

[2] This phrase or term appears to be common to French and English law. Seeing that Lower Canada is in great measure peopled by persons of French extraction, and that their customs or habits are much more those of France than of England, the term has probably been borrowed from French law, by which it is equally applied to the Insane. [*Vide* Dr De Castelnau's "Essais Physiologiques sur la Législation: Premier Essai, De l'*Interdiction* des Aliénés," Paris, 1860; or quoted in Winslow's Medical Critic and Psychological Journal for 1861, p. 286.]

"2. The interdiction of such habitual drunkard shall be proceeded with before a judge, by summoning before such judge a *family council*, as in the case of tutorships under the provisions of the civil code of this province, and by taking the opinion under oath of each person composing the said family council, as to the truth of the fact of the person whose interdiction is proposed being an habitual drunkard, and as to the necessity of such interdiction; but the person making such demand in interdiction shall not form part of such family council.

"3. The interdiction of any person interdicted as an habitual drunkard shall have the same effects as those conferred by the law in force in this province in the case of the interdiction of any person for *insanity*.

"4. In proceeding to the interdiction of any person for habitual drunkenness, it shall not be necessary that the proof of any of the facts to be established for such purpose before the judge be taken in writing, nor that the person whom it is sought to interdict be interrogated before the judge; but it shall be sufficient that the judge be satisfied with the oral evidence given before him by the relations (whether of blood or by affinity), or friends, composing the family council, assembled for the purpose of such interdiction.

"5. The petition, praying for the interdiction of any habitual drunkard, shall be formally served upon him at a time when he shall be sober; or if at the time of the said service the person whose interdiction is demanded is not sober, the said petition shall be served upon a reasonable person of his family, at least eight days before that fixed for the appearance before the judge for the purpose of the interdiction.

"6. It shall be lawful for the person whose interdiction shall be thus demanded to produce before the judge witnesses to contradict the allegations of the petition, and the evidence of any or all of the members of the family council; and each party may retain an advocate and counsel to conduct the proceedings on his behalf, and to examine the witnesses before the judge, who may require from the person instituting the demand in interdiction further evidence of the facts alleged in the said petition, in addition to that of the family council; but, as hereinbefore set forth, all evidence given before the judge shall be *vivâ voce*, or taken in writing, as the judge shall deem proper.

"7. The decision of the judge shall be final and without appeal, whether he grants the interdiction or rejects the demand therefor.

"8. If any demand in interdiction under this Act be rejected, the same shall not be renewed before the expiration of three calendar months.

"9. Any person interdicted as an habitual drunkard may be relieved from such interdiction after one year's sober habits; and the removal thereof shall be effected by observing the same formalities as those prescribed to obtain the interdiction; and the person interdicted shall not regain the exercise of his civil rights until after the judgment removing the interdiction.

"10. The wife, or the son of full age, of any person interdicted for habitual drunkenness, may be appointed his curator; and when the wife of the person interdicted shall have been appointed, she shall have all the powers of the curators to persons interdicted for *prodigality*, and shall be subject to the provisions of Article 180 of the Civil Code, save in so far as regards acts of simple administration, and for such acts her appointment as curatrix shall avail as full authorization.

"11. Whosoever shall wilfully sell or give to, or procure for, any person interdicted under this Act intoxicating liquors, shall incur for each offence a penalty of forty dollars,[1] recoverable by the curator for and on behalf of the family of the person interdicted by summary proceeding, within three calendar months from the commission of such offence, before any justice of the peace of the district in which the offence shall have been committed; and in default of payment of the said penalty, together with the costs of suit, within the delay fixed by the said justice of the peace, the offender shall be imprisoned in the common jail of the district in which he resides for the space and term of three calendar months, unless the said penalty and costs, and the costs of imprisonment and of the conveyance of the defendant to the said jail, be paid.

"12. Any person who, according to the common report of the neighbourhood, has the reputation of being a drunkard, shall be deemed to be an habitual drunkard according to the intent and meaning of this Act.

"13. All proceedings under this Act shall be summary, and the forms hereunto annexed, or any other analogous forms, shall be sufficient; and the same shall not be attacked for any error in form or for any irregularity before any court.

"14. The name of every person interdicted under this Act shall be inscribed on the roll of interdicted persons, as in other cases of interdiction.

"15. The Lieutenant-Governor may, if he deem proper, grant a *license* to keep an *asylum* for the use of drunkards, to the person or persons, or to the association of persons, who may appear to him to deserve the same.

"16. The granting of the said license and the continuation thereof shall be subject to the orders and regulations passed in respect thereof by the Lieutenant-Governor in Council, who shall at the same time define the powers and privileges, and also the duties and obligations, of the director or directors of the said institution.

"17. The curator of any person interdicted under this Act may place the person interdicted (whose curator he is) in any duly licensed institution for the cure of drunkards, and may remove him from the same whenever he shall deem it desirable.

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[1] = between £7 and £8 sterling.

"SCHEDULES.

"(A.) *Form of Petition for Interdiction.*

"Province of Quebec, District of .

"To the Honourable A. B., one of the Judges of the Superior Court for Lower Canada:—

"C. D. (*farmer*), of the parish of , in the said district, by this his petition respectfully represents: That for about year , E. F. (*farmer*), of the said parish of , (*uncle or brother of the petitioner, as the case may be*), has been an habitual drunkard; and that, by reason of his drunkenness he squanders or mismanages his property (or places his family in trouble or distress; or transacts his business prejudicially to the interests of his family, of his relations, or of his creditors); and that therefore it is desirable that, under the statute in such cases made and provided, the said E. F. be *interdicted as an habitual drunkard:* Wherefore your petitioner prays that the interdiction of the said E. F., as an habitual drunkard, in accordance with the statute in such cases made and provided, be pronounced.

"(B.) *Form of Affidavit, which must accompany the Petition praying for the Interdiction.*

"C. D., the petitioner named in the foregoing petition, being duly sworn upon the Holy Evangelists, doth depose and say: That the facts alleged in the foregoing petition are true, and that the said petition hath not been made through malice, nor with a view to oppress. And he hath (*declared himself to be unable to sign, or hath*) signed after the same hath been duly read to him.

"Sworn before me this
18 } J. S. C.

"(C.) *Judge's Order assembling a Family Council to proceed to the Interdiction.*

"Considering the foregoing petition and affidavit, let the relations, whether of blood or affinity, and in default of such relations the friends, of the said E. F., in the said petition mentioned, appear before me in chambers, in the court-house, in the city or town, &c., on the day of 18 , at o'clock, in the noon, for the purpose of proceeding upon the said petition. 18 . J. S. C."

The want of some such restrictive and reformatory measure is being felt, or has been felt, more or less severely in *all* the British colonies. I was struck with this fact while travelling in New Zealand and Australia some years ago. The feeling in the latter colony regarding the treatment of Inebriates is well illustrated by the following quotation from a leading article on the "Curse of the Colony," in the *Maryborough Advertiser* of — February 1870:—"Why should we continue," says the editor, "to make any distinction between the habitual drunkard and the *lunatic?* Why put the latter under restraint and suffer the former to go free? They are equally dangerous to society, and should be equally sequestrated from it. For its own protection, society should step in and weed out its drunkards. Let us have separate asylums for their reception and detention, and let us insist upon their being made self-supporting. The drunkard should be debarred from the use of fermented liquors, and he should be compelled to earn enough to defray the cost of his own maintenance. The funds necessary for the erection of these drunkards' asylums might be obtained by the imposition of a special tax upon imported beers, spirits, and wines, and upon the brewers, distillers, and publicans of the colony. Such a tax would be equitable in principle, and need not be oppressive in operation. Of one thing we are very certain, that by eliminating the drunkards from society, and shutting them up in asylums or industrial homes, we should very soon witness a gratifying falling off in the amount of *crime* committed, in the number of coroners' inquests held, in the applications for admission to our hospitals and benevolent asylums, and in the cost of maintaining our penal establishments and police!" Commenting on the foregoing quotation, the *Oamaru* (New Zealand) *Times* of 1st March 1870, in a leader on "Colonial Intemperance, and How to Remedy it," remarks,—"Something more needs to be done for the rescue of those who are already the slaves of this besotting vice. They must, if rescued at all, be rescued *perforce;* and their very inability to help themselves renders it necessary that society should deal with them as it deals with *insane* persons—put them out of the reach of doing harm to others or to themselves."

Some of the United States of America[1] have, however, already done what the British colonies are only doing or desire to do;[2] they have established Reformatories for Inebriates, and these Retreats or Inebriate Asylums have been in successful operation in certain cases so long that their advantages can be fairly appreciated. In two instances, these institutions are State Asylums with state support, viz., that at Binghampton,[3] in the state of New York, under the superintendence of Dr Albert Day, and the Washingtonian Home at Boston, Massachusetts.[4] In another case,[5] a private charitable association—the "Citizens' Association of Pennsylvania," whose headquarters are Philadelphia—has been endeavouring since 1866 to do what in the other states just mentioned has been undertaken very properly by the legislature. The association in question was incorporated, however, by act of legislature in 1866, *inter alia*, "for the reformation of inebriates:" . . . for "the purchase of lands, and erection of buildings for the cure of the intemperate," said erections being designed to take the form of "a series of cottages." The general views of this association, so far as concerns the reformation of

[1] Others of them (*e.g.*, Ohio) still require the same kind of legislation for inebriates that is so urgently wanted in England and Scotland.—[*Vide Journal of Mental Science*, April 1870, p. 72.]

[2] The erection of a Home for Drunkards is contemplated in Nova Scotia; and *throughout* the British North American Provinces an active movement is going on in the same direction.

[3] An account of its organization may be found (1) under the head of "Hospitals for the Intemperate," in Winslow's Journal of Psychological Medicine, 1855, p. 171; (2) in the "Lancet," vol. i. for 1868, p. 31; (3) under the head of "Asylums for Inebriates," in a "Report on Lunatic Asylums," submitted by Dr Manning to the Government of New South Wales, 1868 (p. 148); (4) in an article "On the Rational Treatment of Drunkards," in Macmillan's Magazine for Aug. 1870.

[4] Has an annual grant from the legislature of $5000 (£1000). Up to 1868, the State contribution to its finances had amounted to $37,000 (£7400).

[5] There are Inebriate Asylums also in New York (City), Chicago, and San Francisco; and one, known as "The Sanatorium," at Medea, near Philadelphia. But I am not aware how far these possess a *State* or *Private* character.

inebriates, may be understood by the following quotation from its "Address," published in 1866 (p. 7):—

"We propose to offer the means of recovery, if possible, to those who may desire to accept them, and to place those means within reach of the friends of such as may be lost to the desire for good. It is not the intention to erect a large and forbidding edifice, with even the appearance of a public charity, a reformatory, or penal establishment, but a *series of cottages*, where the *domestic idea* and habits of the family may be observed and perpetuated; *homes* to which persons may go without any compromise of their self-respect, subjecting themselves only to such treatment and discipline as their condition may require, and where the allurements of literature and art may be secured to them with a hope of restoring and improving the taste for the good and the true. These Homes will be erected in the country, and we will endeavour to make them as attractive in situation and external surroundings as possible. Above all, we will aim to make them Christian homes, believing, as we do, that while the appliances of medical science are needful to relieve physical maladies, and the allurements of art and innocent pleasures are requisite to win the imagination and cultivate the taste, the introduction of human sympathies, and the direct influences and teachings of Christianity must be applied, and the Divine blessing sought, for the purpose of awakening the religious principle within, and ensuring the reformation of the moral character."

I have myself had considerable experience, in connexion with my official position as Physician to an Hospital for the Insane of the middle and upper classes, during the last fifteen years, of that most troublesome class of patients—Inebriates; an experience that has led me to give much attention to the measures best calculated for their proper management. I have had opportunity, moreover, of studying the measures adopted, and of acquainting myself with the views prevalent on the subject, in many foreign countries, including the United States of America, the two Canadas, New Zealand, and Australia; as well as in Norway and other continental European countries. I find that there is wonderful unanimity of opinion among *physicians* in regard to the propriety of, or necessity for, some such restrictive and reformatory measure as is embodied in the enlightened and humane Bill of the Government of Lower Canada. In several continental European countries such measures are already in operation—for instance in Belgium,[1] and Sweden[2]—their nature varying, however, in detail among different peoples. In both England[3] and Scotland[4] many efforts have been made to induce Government to legislate for this much neglected class of the community; but hitherto without avail. The obstacles or difficulties lie entirely with *legal* authorities and the legislature.[1] They arise obviously from that repugnance to interfere with the so-called "liberty of the subject," which is so characteristically British; which reluctance, however, in our own country, amounts to a morbid, cowardly, and culpable timidity, that gives license to, or is otherwise productive of, an amount of vice and misery that cannot be adequately estimated or represented![2]

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[1] *Vide* Journal of Mental Science, April 1870, p. 72.

[2] *Vide* Dr Dagonet in same Journal for 1866, p. 256.

[3] Only last session an unsuccessful attempt was made by Donald Dalrymple, M.P., to pass the bill, which he has again recently brought before Parliament.

[4] *Vide* (1.) "The Social and Political Relations of Drunkenness," by Professor Laycock of Edinburgh, 1857, pp. 7 and 23. (2.) "The Necessity for some legalized Arrangements for the Treatment of Dipsomania, or the Drinking Insanity," by Dr Alexander Peddie of Edinburgh, 1858 [or quoted in the Dublin Quarterly

In a subsequent communication, I propose to (1) recapitulate in abstract my own views as to the kind of provision necessary in England and Scotland respectively for the proper treatment of Inebriates; (2) to offer certain commentaries on the modifications which are necessary or desirable for adapting the provisions of the Canadian Bill above quoted to the special requirements of Britain; and (3) to contrast the said Canadian legislative measure with the Dalrymple Bill now before our own Imperial Parliament, so as to bring out the respective excellences of both.

ARTICLE VI.—*On the Action of the Cobra Poison.* By J. FAYRER, M.D., F.R.S.E., C.S.I.; Surgeon, Bengal Army; Professor of Surgery in the Medical College of Bengal.

(*Continued from page* 147.)

THE THANATOPHIDIA OF INDIA.

DR MURRAY, Inspector-General of Hospitals, having kindly sanctioned the distribution among Indian Medical Officers of a circular

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Journal of Medical Science for 1858, p. 345]. (3.) "On some of the Medico-legal Relations of the Habit of Intemperance," by Professor Christison of Edinburgh, 1861 [quoted in Winslow's Medical Critic and Psychological Journal for 1861, p. 500]. (4.) "A case of Moral Insanity or Dipsomania," by Professor Gairdner of Glasgow, recorded in his "Clinical Medicine" [quoted in the Journal of Mental Science for 1863, p. 590]. (5.) Annual Reports of the General Board of Commissioners in Lunacy for Scotland, 1859 to 1870. (6.) "Report by H. M. Commissioners appointed to Inquire into the State of Lunatic Asylums in Scotland," 1857, vol. i. p. 242, and vol. ii. pp. 435, 520, and 524; especially the evidence of Dr Simson, Surgeon to the Prison of Edinburgh, of Dr Browne, lately one of H. M. Commissioners in Lunacy for Scotland, and of Dr Skae, of the Royal Edinburgh Asylum.

[1] Unfortunately Britain is not singular in this respect. In the Second Report of the Board of State Charities for Massachusetts (1866, p. 188), it is stated, "Of all our *legislation*, that which deals with the question of *intemperance* is, if reasonable, the least efficient, and, if judged by its results, the most unreasonable!"

[2] While the *Lunatics* of England number about 54,000, and those of Scotland 7300, it has been estimated that the *Habitual Drunkards* of Great Britain amount to not less than 600,000; and that between 50,000 and 60,000 lives are annually lost in England alone by accidents and diseases caused by the *abuse* of intoxicating liquors!

letter[1] and printed form, with the object of obtaining information on the subject of snake-poisoning in this Presidency, I think it may be well to supplement that circular with a short description of the list of poisonous snakes thereunto appended, and with a few remarks on the more important anatomical and zoological peculiarities of these reptiles, as they may be useful to those who have not paid particular attention to this branch of natural history. The list, in giving merely the names of the varieties, species, and genera of the thanatophidia, or poisonous snakes, indicates generally the localities where they may be looked for, and the relative frequency or rarity with which they may be expected to occur. A more detailed account may perhaps aid those who are disposed to assist in collecting and recording reliable information on a subject interesting alike to science and humanity.

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[1] "The Inspector-General of Hospitals is desirous that the observations on snake poison, which Dr Fayrer has hitherto been engaged in, should be extended throughout the Presidency, and he now asks Medical Officers to render any assistance in their power for the fulfilment of the object. The Inspector-General believes that very useful and practical results will accrue from the scientific investigations which Dr Fayrer is still prosecuting; researches which may lead to a complete knowledge of the subject, and which must prove of service to the population of the country.

"2. The Inspector-General therefore requests you will be so good as to supply each Medical Officer in your circle, of whatever grade, with a copy of this memorandum and spare forms, and to enlist their exertions on the subject.

"3. Medical Officers are requested to submit to you, as soon as practicable after the 1st January 1870, a return of all authenticated cases of snake-bite that occurred among the civil and military population under their cognisance, during the year 1869, in the manner arranged for in the accompanying form; the columns for which there is no precise information are to be left blank.

"4. From the 1st January 1870 cases as they occur are to be sent monthly to your office, drawn up in the same form; if no cases occur the return need not be transmitted.

"5. Particular attention is to be given to the filling in of the columns of the form, and any other information of interest is to be entered in the column of remarks.

"6. Particular attention should be paid to the detail of symptoms after a bite, the duration of life, and the pathological symptoms after death; noting particularly the absence or presence of the rigor mortis, the state of the blood, microscopically if practicable, and its fluidity or coagulability; the treatment pursued, and any remarks to elucidate the recorded conditions.

"7. The bodies of persons who have died from snake-bites are frequently sent by the police or judicial authorities to the Civil Medical Officer for examination. It is particularly requested that careful accounts of all such autopsies may be sent in with the printed form; and that in making the examination, Medical Officers will be kind enough to note *particularly* the conditions to be attended to in paragraph 6, as well as any other pathological condition that may be observed. The local effects of the bite, the position of the fang-punctures, and the state of the parts in the vicinity of the bite, as well as remote from it, should be accurately recorded.

"8. Particular attention is also requested to any difference in symptoms and pathological states in the cases of bites of the viperidæ, *i.e.*, the Russells viper or daboia, and the trimeresurus, as distinguished from those of the poisonous colubrine snakes, such as the Naja tripudians or cobra, Ophiophagus

The order *Ophidia*, of the sub-class Reptilia proper, is divided into three subdivisions:—

1. The *Ophidii colubriformes*, or innocuous snakes.
2. The *Ophidii colubriformes venenosi*, or poisonous colubrine snakes.
3. The *Ophidii viperiformes*, or viperine snakes—poisonous.

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elaps or sunkerchoar, and all of the less poisonous Bungarus family, as B. cæruleus or krait, and B. fasciatus or sankni.

"9. The papers are to be transmitted to this office as received by you.

"NOTE.—A list of the poisonous snakes of Hindostan is appended.

By order, J. T. C. ROSS, F.R.C.S., *Surgeon-Major.*"

*Snakes most commonly met with have ** prefixed: those less so,*; the remainder are comparatively rare.*

SUB-ORDER, POISONOUS COLUBRINE SNAKES.

Family————Elapidæ.

GENUS ** 1. NAJA: *N. tripudians* or cobra: several varieties.
Native names, keautiah, gokurrah, etc.
„ * 2. OPHIOPHAGUS: *O. elaps hamadryas*, one species. From Assam to west bank of Hooghly.
Native name, sunkerchoar.
„ ** 3. BUNGARUS: *B. cæruleus* or *krait*. From Calcutta to Delhi.
** *B. fasciatus* or *sankni* (marked with black and yellow bands Bengal generally).
„ 4. XENURELAPS: *X. bungaroides*, found about Cherrapoonjee.
„ 5. CALLOPHIS: *C. intestinalis*.
C. Maclellandii, found in Central India.
C. nigrescens, found in the Neilgherries.
C. annularis, India generally.
C. trimaculatus.

Family of Hydrophidæ or Sea Snakes.

1. PLATURUS: *P. scutatus*, found on the coast from Chittagong to Madras.
P. Fischeri, „ „
* 2. HYDROPHIS: several varieties found on the coast.
* 3. ENHYDRINA: *E. Bengalensis, Hidgelli*, Botanic Garden, Dhappa Canal.
4. PELAMIS: *P. bicolor*.

H. cyanocincta, Hidgelli.
H. robasta, Do.
H. coronata, Do.
H. stricticollis, Do.
H. chloris, Sandheads.
H. gracilis, found at Dhappa, Calcutta.

SUB-ORDER, VIPERINE SNAKES.

Family of Pit Vipers or Crotalidæ.

1. TRIMERESURUS: * *T. gramineus*, found in Bengal, has been found at Dhappa Canal.
* *T. erythrurus*, „ „
T. carinatus, „ „
T. anamallensis, „ „
T. monticola, „ „
T. strigatus, „ „
T. mucrosquamatus, „ „ Assam.
2. PELTOPELOR: *P. macrolepis*, found in the Annamallay Mountains.
3. HALYS: *H. Himalayanus*.
4. HYPNALE: *H. nipa* or *carawala*, found in Southern India.

Family of Vipers or Viperidæ.

1. DABOIA: ** *D. Russellii*, native name *bora*, found all over Bengal, from Southern India to the Himalaya as high as 3500 feet above the sea.
2. ECHIS: *E. carinata*, found in the Annamallay Mountains, Carnatic, and other parts of India.

J. FAYRER, M.D.

Return showing the number of Deaths and Recoveries from Snake-bites.

Names.—Caste.—Race.—Occupation.—Sex.—Age.—Hour and date when bitten.—Native, English, and technical name of the snake, and general description of the circumstances under which the bite occurred.—District, village, or locality where bitten.—Symptoms.—Treatment, if any.—Date of death.—Date of recovery.—Number of minutes or hours ill.—State of lungs after death.—State of heart and great vessels after death.—State of abdominal viscera after death.—State of blood after death.—State of brain and nervous system.—Cadaveric rigidity, when occurred.—Remarks.

The two last sub-orders, under the designation of Thanatophidia, a name peculiarly applicable to them, as they occur in India and in the Bengal Presidency especially, I propose to describe. I will premise the description of individual genera and species by a few remarks on the general characteristics of the three sub-orders, and especially on those which distinguish the innocuous from the venomous snakes; and of the latter, the differences which mark the viperine from the colubrine forms.

The characters possessed in common by the three sub-orders are the elongate form; the absence of any exo-skeleton, sternum, pectoral arch, sacrum, or limbs, with the exception, in a few of the colubrines, of rudimentary pelves, or hinder extremities. The mandibles are united by an extensile ligament, and are articulated with tympanic bones, which allow of the extensive gape through which they swallow their prey. They have neither external ears nor eyelids, but the eye is covered by a transparent glassy capsule, which exfoliates with the epidermis when that is shed. The body is naked, but it has this epidermis, which is frequently exfoliated, laid in scale-like folds and shields on the head and ventral surface. The number and arrangement of these non-imbricated shields on the head is of value in the classification of the genera and species. They are named as follows:—

Rostral.
Anterior frontal.
Posterior frontal.
Vertical.
Supraciliary.
Occipital.
Nasals.
Loreal.
Ocular anterior, or præ-orbital.
„ posterior, or post-orbital.
Upper labials.
Temporals.
Mental.
Lower labials.
Chin shields.

Snakes are provided with sharp recurved teeth, which are anchylosed to the maxillary, palatine, and pterygoid bones, and it is by the form and arrangement of these teeth that the poisonous are most easily distinguished from the innocuous species. Certain Ophidia, approaching nearly to the Saurian forms, such as typhlops, tortrix, uropeltidæ, have rudimentary pelves and a narrow mouth, without the enormous gape; but in these it is only a matter of more or less development. The lungs are unsymmetrical, one being much larger than the other. The heart has three cavities, one ventricle and two auricles; the urinary bladder is wanting.

The organs of locomotion are the ribs, which unite with a rudimentary transverse process of the vertebræ, and correspond nearly to the number of dorsal vertebræ, and the ventral plates or scales. They are all carnivorous, existing on living animals or eggs; the prey is swallowed entire, as they have no organs of mastication. They are oviparous, ovoviviparous, or viviparous. They are "hæmatocrya," or cold-blooded. Their blood is rich in solid constituents, and has red corpuscles of an elliptical shape, which are flattened and bi-convex, and smaller than in other reptilia.

These are some of the most marked characteristics of the order Ophidia, that are common to the three sub-orders into which it is subdivided. Before describing those which differentiate one sub-order from the other, I would make a few remarks on the osteology of the cranium, the dentition, and glandular apparatus, to which they owe their deadly properties. The Ophidia are distributed generally over the surface of the globe, wherever climate and other circumstances are favourable to their existence; India has perhaps a larger share than any other country, and the poisonous forms constitute a considerable proportion of the whole number of families. Of twenty-one families well known to naturalists in this country four are poisonous. The most deadly of the poisonous colubrine snakes—such as the Ophiophagus elaps and Naja tripudians—are Indian; whilst of the viperine forms the Viperidæ are represented by the formidable Daboia Russellii, than which there is probably no more deadly viper, and the Crotalidæ by the Trimeresurus. All the members of this family are much less formidable than their African and American congeners, such as the Crotalus horridus or rattlesnake, the Jararacca or Craspedocephalus Braziliensis, which are much more deadly than any of the Crotalidæ of this country.

The four poisonous families are:—

Elapidæ. Hydrophidæ.	Colubrine.	Viperidæ. Crotalidæ.	Viperine.

The seventeen innocuous families are:—

1. Typhlopidæ.
2. Tortricidæ.
3. Xenopeltidæ.
4. Uropeltidæ.
5. Calamaridæ.
6. Oligodontidæ.
7. Colubridæ.
8. Homalopsidæ.
9. Psammophidæ.
10. Dendrophidæ.
11. Dryophidæ.
12. Dipsadidæ.
13. Lycodontidæ.
14. Amblycephalidæ.
15. Pythonidæ.
16. Erycidæ.
17. Acrochordidæ.

The four poisonous families contain:—

	Genera.	Species.
Elapidæ,	6	16
Hydrophidæ,	7	42
Viperidæ,	2	2
Crotalidæ,	6	15
	21	75

The cranium of a snake is built up of a number of bones which have their homologues in the mammalian skull, but are more complex, and modified in accordance with the structure and habits of the reptile. It is unnecessary to describe in detail the bones which enter into the formation of the cranial cavity, which is very small, being in proportion to the imperfectly developed encephalon it protects. But as those which enter into the structure of the maxillary and mandibular arches are of importance in distinguishing the venomous from the non-venomous snakes, it is well that a short description of them should be given. It is the peculiar structure of the jaws indeed that forms one of the chief characteristics of the Ophidians. The bones which compose the upper jaw and palate, as well as the mandibles, are freely movable, the latter being loosely hung from the tympanic bones, and are united in front by ligament. The mastoid bones with which the tympanic bones articulate are also movable, so that the distensibility of the mouth is very great, as it often needs to be, to enable the snake to swallow prey larger in diameter than itself.

The mechanism of deglutition in the Ophidia is very remarkable; the mouth can not only be opened vertically, but transversely; and, further, each lateral half has the power of separate and independent motion, which is called into action when the prey is swallowed. By the continual action of the jaws and teeth, the animal brought within the grasp of the mouth is slowly drawn in and engulfed; it is first held firmly by the sharp recurved teeth, one side of the jaw is then protruded, the teeth being withdrawn to be again implanted further on; the same process is repeated alternately on either side, until the prey is finally drawn within the grasp of the gullet. This is the mode of deglutition in the Python and other non-venomous snakes. A similiar process, with certain modifications in the dental arrangement, obtains in the poisonous snakes; the chief structural distinction being found in the maxillary teeth, which in them are long, sharp, recurved, and perforated fangs, through which the secretion of the poison-gland is hypodermically injected into the bitten animal. Before describing the maxillary arch, it may be well to say a few words about the dentition of serpents generally. The non-venomous forms have two rows of teeth in the upper jaw—the outer or maxillary, the inner or palatine. In the majority, the outer row has from twenty to twenty-five teeth, though in some genera, as Tortrix homalopsis, they are less numerous; in the typical venomous snakes the maxillary bone is very short, and the outer row is represented by a single long tubular fang, with loose reserve fangs in the mucous fold surrounding it, which is firmly anchylosed into the movable maxillary bone. In other genera, Dryophis, Dipsas, the maxillary teeth increase in size towards the posterior part of the bone, and the terminal teeth are even grooved on their convex surface. These teeth may enable the snake to retain a firm hold on its prey, or they may give entry to acrid saliva, but they are not connected by a duct with any poison-gland.

The grooved or perforated poison-fangs are firmly fixed in the maxillary bone, and are covered by a fold of mucous membrane, in which they are ensheathed, and in which other poison-teeth lie loose until one of them is called for by the loss of the actual fang. Its successor then becomes anchylosed to the maxillary bone, and communicates with the duct of the poison-gland.

The teeth of the Ophidia generally are conical, sharp-pointed, and recurved weapons, firmly fixed in the bones with which they are connected. In some snakes the pre-maxillary or inter-maxillary bone is without teeth; in others it is furnished with them. The maxillary bones in the poisonous snakes have one or two grooved fangs, one only of which on either side is effective; and in some of the poisonous colubrine snakes, as the cobra or bungarus, there may be one or more smaller teeth of the ordinary kind immediately behind the poison-fangs. In the non-venomous colubrine snakes the maxillary bone has a whole row of equal-sized recurved teeth. The palatine teeth are of about the same size as the maxillary in non-venomous snakes. The pterygoid teeth are somewhat smaller. In the typical poisonous snakes the maxillary bone is reduced to a mere wedge of bone, giving support only to the poison-fangs. The ecto-pterygoid bone is elongated in proportion, and it is mainly through the medium of its articulation with the maxillary bone that its hinge-like motion enables it to depress or erect the fang at will. The tooth, it is to be observed, has no independent motion, it moves only with the bone with which it is united, that bone being moved during muscular action by the pressure on it of the ecto-pterygoid. In the viperine snakes, in which the poison-fangs are very large, the degree of mobility is remarkably great, and the snake, when irritated and about to strike, gives them a peculiar and independent vibratile movement, which is very striking. In them the natural position of the fang is the recumbent one. When the snake strikes, and as it opens its mouth, the maxillary bone is pushed forward, and the fang is erected. The poison-fangs are described as grooved or perforated teeth, but, strictly speaking, they are not so. Like other teeth, they are solid, composed of dentine and enamel, but they are folded over so as to form a cylinder in some cases; in others, an open groove. It is as though you took a leaf and folded it longitudinally until its edges overlapped to form a tube, or approached each other so as to form a groove. The various degrees of involution are represented permanently in the fangs of different poisonous snakes. For example, in the Hydrophidæ, the fang is only so folded as to form an open groove; in the Elapidæ the canal is a complete tube; in the Viperidæ it is even more so, all appearance of this involution have disappeared. The groove or canal communicates at the base by a triangular opening with the poison-duct; and the apex is open near the point. It will be seen from this, that the groove or perforation is external to the pulp cavity. The dentine of the fangs is arranged so as to radiate vertically round the canal, and it is covered externally with a coat of cement, which gives its polish and hardness. The fangs vary much in size in different families of poisonous snakes. In the viper they are very long, sharp-pointed, and most formidable weapons, having the power to inflict a deep wound. They are perforated from the base to the apex by the poison-canal running along the anterior convex side of the tooth, and are firmly anchylosed to the maxillary bone, which is exceedingly mobile. Their natural position in a state of rest is the recumbent one, but they become erect when the snake strikes. In the capsule of mucous membrane which envelops the fang there are several reserve poison-fangs in different stages of growth; these are unattached, but are ready to replace the actual fang if lost, and to become anchylosed to the maxillary bone, and connected with the duct of the poison-gland.

In the Elapidæ the structure of the fang is similar, but it is relatively much smaller, and there is less movement in the maxillary bone, which is longer than in the Viperidæ, and has sometimes one or two ordinary teeth behind the poison-fang. It is also a most formidable weapon, independently of its connexion with the poison-gland, but only half the size of the viperine fang. In the Hydrophidæ the fang is still smaller, and it remains as an open groove along which the poison is injected into the wound it has inflicted.

The Hydrophidæ or salt-water snakes are a poisonous family. Their bite is very dangerous, notwithstanding the small size of the fang.

A few words now on the formation of the ophidian skull:—

It has three pairs of frontal bones; the two anterior form the anterior part of the orbit; the two median lie between them and the two posterior, which form the posterior boundary of the orbit. The nasal bones lie immediately in front of the middle frontal, and the inter-maxillary bone between them forms the muzzle of the snake. The parietals lie behind the post-frontals, and at their posterior angles are the two mastoid bones, which overlap as they articulate with them. The mastoid bones, which are movable, articulate with the long and slender tympanic or inter-articular bones; they articulate at the opposite extremity with the mandibles, each of which consists of three segments—the articular, the coronary, and the dentary. These are united in front to form the lower jaw by an elastic ligament; the result of this loose and ligamentous union of the mastoids, the tympanic, and the mandibles, is to give great extensibility to the aperture through which the prey is introduced into the gullet. The upper jaw is composed of the pterygoids, the palatines, the ecto-pterygoids, the maxillaries, and the pre-maxillary. The maxillary arch is thus made up; and the maxillary bones, in the Viperidæ, the typical poisonous snakes, are short, movable, and furnished with one long tubular fang each, with which it is firmly anchylosed, together with other rudimentary fangs loose in the capsule of the mucous membrane which surrounds the fang. The non-venomous colubrine snakes, on the other hand, have a long, fixed maxillary bone set with a number of non-perforated teeth, as before described. The maxillary bones of the poisonous colubrines are a modification of the latter. They are longer than in the viperine family, and less movable. They have a tubular poison-fang, but it is smaller; and they have in some cases one or more fixed and non-perforated teeth immediately behind the poison-fang. Such may be seen in the naja and bungarus. The maxillary bones articulate with the palatine, the ecto-pterygoid, the anterior frontal, and in the non-venomous snakes with the pre-maxillary. This bone varies much in form in different genera.

The pterygoid articulates with the palatine, ecto-pterygoid, and basi-sphenoid; and in the viper it abuts against the tympanic pedicle, and thus influences the movement by which, through the ecto-pterygoid, the maxillary bone is pushed forward and the fang erected. The ecto-pterygoid overlaps the posterior portion of the maxillary at one end, and at the other it joins the pterygoid. The mandibular arch is composed of the tympanic bones, which articulate with the mastoid at one end, and with the condyles of the lower jaw or mandibles at the other; this mandible on either side being, as I have said, composed of three segments, and the posterior part of the pterygoid, which, in the viper, abuts against the end of the tympanic pedicle.

The bones which enter into the formation of the cranial cavity are,—parietals, basi-occipital, occipital, ex-occipital, sphenoid, alisphenoid, basi-sphenoid, pre-sphenoid, and orbito-sphenoid; the lachrymal and turbinal bones, and vomer. These are connected with the maxillary arch. In the vipers especially there is a prominent bony spine on the base of the skull, to which the longus colli muscles have a firm attachment. This gives these snakes the great power of striking that they possess.

The muscular apparatus connected with the bones I have just briefly described is next to be shortly considered, especially that portion of it which is concerned in the act of grasping the prey and inflicting the poisoned wound.

The following are the muscles concerned in these processes:—The masseter, which arises from the ecto-pterygoid and passes backwards, winding round the tympano-mandibular joint, to be inserted into the mandible as far forward as the dentary. The membranous origin of this muscle extends over the poison-gland.

The temporal muscle arises from the parietal bone, and is inserted into the coronary process of the mandible. It is partly covered by the masseter. The posterior temporal takes its origin from the anterior part of the mastoid and parietal, and is inserted into the coronoid side near the joint. The tympano-mandibular or digastric arises from the posterior part of the tympanic bone, and is inserted into that of the angular process of the mandible. From the fascia of the anterior vertebræ, a muscle, called the neuromandibular, and another smaller slip, called the costo-mandibular, extend downwards and forwards, to be inserted into the lower border of the mandible. The action of these muscles is to retract and depress the lower jaw.

The ecto-pterygoid passes forwards and expands into a fascia, which, in the poisonous snakes, covers the sac in which the fangs are enveloped. It is inserted also into the lower part of the posterior extremity of the maxillary bone. It helps to fix the maxillary when the fang is used, and it also retracts the fang when the erectile force is relaxed. The ento-pterygoid arises from the pterygoid bone, and passes outwards and backwards, to be inserted into the posterior part of the lower jaw. Its action is to draw together the mandibles, whilst it separates and draws backwards the palato-pterygoid bones. The anterior parts of the mandibles, which are relaxed in the stretching of the ligament during deglutition, are drawn together again, and corrugated by a transverse band of muscular fibres called the inter-mandibular. This muscle also sends off a slip on either side, which expands on the inter-mandibular integuments, the action being to corrugate it after the stretching it has undergone, and it is aided in producing this effect by an additional thin layer of muscle. The pre-spheno-pterygoid extends forwards to the pre-sphenoid, and is attached to the pterygoid and ecto-pterygoid, where they unite. In pushing forward the pterygoid it also pushes forward the maxillary bone through the ecto-pterygoid, and rotates it, so as to erect the poison-fang. The pre-spheno-palatine takes its origin from the side of the fore part of the pre-sphenoid, and passes outwards to its insertion along the inner surface of the palatine. From the side of the pre-sphenoid the pre-spheno-vomerine muscle arises; it sends a slender tendon to the vomer, the action of which is to depress and retract the pre-maxillary, restoring it to its natural position after it, with other bones which have been displaced in swallowing the prey.

Such are the muscular arrangements by which the mouth is opened vertically and laterally; the poison-gland compressed and the venom injected through the poison-fang, which, by a simultaneous combined action of muscle and bone, has become erect, and is fixed in that position during the infliction of the deadly blow by which the fangs are embedded in the flesh of the snake's prey.

A few words now on the poison-gland and its ducts.

The poison-glands are situated behind the eye, and in front of the tympanic bones. They are oval bodies about the size of an almond in the cobra; the secreting structure consists of a series of elongated lobes diverging from the principal duct. The lobes are subdivided into lobules, which are subdivided into cæca. These, having secreted the poison, convey it through the poison-duct to the base of the poison-fangs in the capsule of mucous membrane surrounding them. These glands are of different form and size in different families of snakes, but they are all modifications of the structure I have described. The gland is encased in a capsule, and is partially covered by fibres of muscle (the masseter), whose action in closing the jaw at the same time compresses the gland, and squeezes the poison through the duct into the perforated tooth. The secretion of the gland varies much in colour and viscosity in different snakes, but its general appearance is that of a clear, lightly-viscid fluid, soluble in water, and slightly acid in reaction. It manifests its deadly effects most powerfully when inoculated into the blood, when the snake is fresh and vigorous in the warm weather, and when it has not bitten for some time. It seems to act through the circulation, paralyzing the nerve-centres, and thus destroying the vital force. But there is no doubt, I believe, that, notwithstanding all that has been said to the contrary, it is capable of absorption through the mucous membranes with which it is brought into contact, though with much less dangerous effects than when it is introduced into the blood. In certain experiments in which the cobra poison was placed on the conjunctiva of dogs, the symptoms of poisoning were rapidly and strongly, though not in all cases fatally, developed. I may have more to say on the subject of snake-poison subsequently, but meanwhile I would remark that there are certain differences in its action as derived from different families of snakes. Thus the poison of the naja kills without destroying the coagulability of the blood; whilst that of the viper—the daboia—produces perfect and permanent fluidity.

The poison may be diluted with water, or even ammonia or alcohol, without destroying its deadly properties. It may be kept for months or years, dried between slips of glass, and still retain its virulence. It is capable of absorption through delicate membranes, and therefore it cannot safely be applied to any mucous surfaces, though, no doubt, its virulence is much diminished by endosmosis. The Prince of Canino, L. Bonaparte, gave, in 1843, an analysis of the venom of the viper (Pelias berus), and he pointed out the presence of a principle representing the ptyaline of saliva. This he called viperine. He also found albumen and mucous fatty matter, substances soluble in alcohol, yellow colouring matter, and saline matters.

The elementary analysis of viperine has yet to be made; it appears to act by a catalytic force—that is, it kills by some occult influence on the nerve-centres; viperine is a neutral substance, and very unstable.

The terms echidnine, crotaline, have been given to a similar principle derived from other snakes. They are probably identically the same.

The poison acts most rapidly on birds and mammals; less so on the cold-blooded animals; but fishes, frogs, molluscs, and non-venomous snakes are destroyed by it, and often die very rapidly.

I have not been able to satisfy myself positively, after many experiments made on purpose, that the poisonous snakes are absolutely insensible to their own or the venom of others, but to a great extent they certainly are so.

I have repeatedly made cobras and daboias bite themselves and each other, and they never seemed the worse for it; but I believe that the poison does take effect on snakes of a less deadly character;

and though I have generally seen the bungarus escape, I have seen an occasional death after being bitten by a cobra, that, I think, might with some reason be attributed to the poison. The non-venomous snakes die rapidly,—the ptyas, a large, vigorous, and fierce snake, though non-venomous, succumbs within an hour or so to the bite of a cobra.

The flesh of an animal dead from snake-poison does not seem to be affected; animals and men eat it with impunity.

The blood of an animal killed by snake-poison is itself poisonous; and, if injected into an animal, rapidly manifests its poisonous effects. I have transmitted the venom through a series of three animals with fatal effect. I have had little or no opportunity of studying the local effects of the poison, for death has always occurred so rapidly that there has been no time for secondary or local changes.

The Ophidia are oviparous and viviparous.

The colubrine snakes generally are oviparous; but there are exceptions, such as the Hydrophidæ and Homalopsidæ, which are all viviparous, producing from four to nine young ones.

The viperine snakes, as their name implies, are all viviparous.

The distinction is not one of such great importance as might at first appear. In the oviparous snakes the young are produced from eggs of an oblong obovate form with a soft leathery white shell. These, from ten to forty or fifty in number, are deposited in some place where the natural heat is sufficient to hatch them.

Of all the Ophidia the python only, according to some authorities, incubates; it coils itself over the eggs, and sits on them till they are hatched.

The viviparous, or rather ovoviviparous, snakes produce their young alive. The eggs are hatched in the oviduct, development having proceeded in them to the point at which the delicate covering of the egg bursts before or during parturition, and the young ones come into the world alive, and immediately show all the activity of their race. A higher temperature than that which is natural to the viper, in its ordinary condition, is necessary to effect this. The temperature of the reptile increases at these times, and the parturient female is said to expose herself to the heat by basking in the sun's rays, at which times she is more sluggish and inert than on ordinary occasions. The female of all snakes is said to be larger than the male; there are certain differences in colour also, which may distinguish the sexes. In the Hydrophidæ the male is known from the female by a distinct swelling on each side of the tail, extending from the root to or beyond the middle of its length. But in other snakes there is no certain external anatomical character to distinguish the sex; dissection, of course, reveals it.

In cold and temperate climates, snakes hybernate, or remain in a state of lethargy or torpidity. Active life is suspended until returning warmth rouses the vital energies into a state of activity. They differ much in their modes of life, habitation, food, etc. They are all carnivorous. Mollusca, insects, reptiles, birds, mammalia, eggs, and milk, are their food. Vegetable matters have been found in the stomach, but they are essentially carnivorous, and most, if not all, take their food only whilst it is alive.

Irrespective of the ordinary natural classification, they are arranged under the following heads:—

Tree snakes; those that live for the most part in trees or bushes, and are characterized by their brilliant colours, generally green, their slender and whip-like form, and great activity. Both the non-venomous colubrines and the viperine snakes are found among this section.

The water snakes are the salt-water and fresh-water snakes; the first are all venomous, the second are all innocent.

The salt-water snakes have a peculiar form adapted to their mode of life—a compressed tail; nostrils above the snout: they are all poisonous and viviparous.

The fresh-water snakes have the nostrils like those of the salt-water snakes. They live in the fresh, though they may be found like the others in brackish water; they have not the compressed tail; they are viviparous; and all belong to the sub-order of non-venomous colubrines.

Ground snakes.—Representatives are found in all the three sub-orders. They live generally above ground. They are more or less cylindrical in shape and very flexible in body. The greater number of snakes are found in this section.

Burrowing snakes live much under ground; have a rigid cylindrical body, short tail, narrow mouth, and small teeth. No ventral shields; they are all innocuous.

The Thanatophidia comprise the two sub-orders: Ophidii colubriformes venenosi, and Ophidii viperiformes: these are represented in India, the former by the Elapidæ and Hydrophidæ; the latter by the Crotalidæ and Viperidæ. In these families the most deadly snakes are found.

A few words on the characteristics of each of the sub-orders and their subdivisions as found in Bengal.

The members of the poisonous colubrine sub-order are distinguished by their form, which is like that of the innocuous snakes; by the formation of the maxillary bone, which, though shorter than that of the harmless snakes, is much longer and less movable than that of the vipers. The poison-fang is shorter, and less movable than that of the viper, owing to the comparative immobility of the maxillary bone, with which it is anchylosed.

It is to be observed that the mobility of the poison-fang in all snakes depends entirely on that of the maxillary bone, as the active tooth is firmly anchylosed to the bone. The reserve fangs lie loose in a reduplication of mucous membrane. The canal through which the poison flows is less developed in the poisonous colubrines than in the vipers, and in the the Hydrophidæ it is actually an open groove. The maxillary bone also in some cases bears other teeth besides the poison-fang.

The third sub-order, Viperidæ.—The viperine snakes are distinguished by their form, the broad head, small, very mobile maxillary bone, to which is anchylosed a long perforated poison-fang, which, on account of the mobility of the maxillary bone, is erectile.

There are other less important distinctions which will be noticed in describing genera and species. It may be briefly noticed that the general characters of a viperine or a colubrine snake are easily recognised. The formation of the maxillary bone and the dentition are certain guides in distinguishing one from the other.

(*To be continued.*)

Part Second.

REVIEWS.

The Physiology of Man; designed to Represent the Existing State of Physiological Science, etc. By AUSTIN FLINT, jun., M.D. 3d Vol. New York: Appleton and Co.: 1870.

BESIDES being well known as an able and original physiological investigator, Dr Flint has acquired for himself a high position as a systematic writer on Physiology, by the publication of two volumes which appeared in the years 1866 and 1867. In the first he treated of the blood, circulation, and respiration; in the second, of alimentation, digestion, absorption, and the lymph and chyle.

In the volume now before us, Dr Flint has treated of Secretion, Excretion, Ductless Glands, Nutrition, Animal Heat, Movements, Voice and Speech; so that, after discussing the great subjects of Innervation and Reproduction, the author will have completed a System of Physiology which, we are sure, will reflect honour upon himself, whilst it will prove of great assistance to the student.

The present volume, to which we now confine our attention, is written in a very pleasant and interesting style; and it bears unmistakably the mark of having been written by a practical physiologist, who gives us, on many subjects, the results of his own observations, and who has, in addition, devoted considerable pains to mastering the literature of the subject. It cannot be denied, however, that some parts of the book are much more satisfactory than others, and that those are most so which treat of subjects which the author has investigated.

In the first ten chapters of the book, the author discusses Secretion and Excretion in general, then individual secretions and excretions, and the organs connected with them.

The first chapter treats of secretions in general, with their classification; of the excretions and their classification; and concludes with a classification of glandular organs.

We are perfectly aware that there is very great difficulty in establishing any philosophical and useful *classification* of secretions and excretions, such as has been attempted, for instance, by Robin; and we are therefore not astonished that our author has been less clear than usual in his attempts to show the great differences which exist between secretions and excretions.

We are scarcely prepared, for instance, to endorse the following: —"It may be stated, then, as a general proposition, that the characteristic elements of the true secretions, as contradistinguished from the excretions, are formed, *de novo*, by the epithelial structures of the glands out of material furnished by the blood; and that their formation is by no means confined to what is usually termed the period of functional activity of the glands, or the time when the secretions are poured out, but takes place more or less constantly when no fluid is discharged" (page 19). It appears to us that the evidence is distinctly opposed to the view, that all *excretions* are necessarily separated from the blood without the special intervention of glandular elements, which we, on the contrary, conceive to be as intimately connected with the elaboration of some excrementitious substances as with the formation of characteristic principles of secretions proper.

In the sections on the Influence of the Nervous System on Secretion, and the succeeding one on the General Construction of Secretory Organs, we certainly should have wished to see at least an allusion to the results of the investigations of Pflüger on the innervation of the salivary and pancreatic glands and of the liver, for we think that these are among the most beautiful results of recent inquiries. Pflüger thinks he has demonstrated that the nerve-fibres supplied to glands ultimately terminate in the glandular elements, the axis cylinder subdividing and actually entering the individual secreting cells. If these statements of Pflüger's be true (and they are made by one of the most reliable men of our time, who has given great weight to his observations by conducting them on several glands), their importance can scarcely be over-estimated. The secreting cell would then become the end organ of an efferent nerve; and in our scheme of secreting structures, the nervous element should form an integral part.

We think Pflüger's observations so important, and their accuracy so probable, that we should have wished them alluded to by Dr Flint in connexion with the experimental evidence which he has adduced as to the connexion of secretion with innervation.

Chapter II. treats of serous and synovial fluids, of mucus, and sebaceous fluids; and the first section of it is on the Physiological

Anatomy of the Serous and Synovial Membranes. We must say that we have not been a little astonished at not even finding a hint to the effect that, in the opinion of many histologists, the serous sacs are but great lymph lacunæ, from which we can, as Von Recklinghausen has shown, trace the lymphatic vessels. There can, at any rate, be no doubt, that the lymphatics of the centrum tendineum of the diaphragm of the rabbit communicate by open mouths with the peritoneal cavity; and the evidence with regard to the lymphatic communication of other serous sacs is almost equally conclusive.

From Chapters I. and II. we pass to Chapters IX. and X., which, as the most original, are the most interesting in the book. These treat of the Excretory Function of the Liver, and of the Production of Sugar in the Liver. In the former (pp. 277–294), the author details his own peculiar views in reference to the excretion of cholesterine, as well as the experimental evidence upon which they are based.

The author considers the bile both in the light of a secretion and of an excretion; in so far as the salts of the bile-acids are concerned, it is a secretion; in so far as cholesterine is concerned, an excretion. "Inasmuch," he says, "as cholesterine is the only excrementitious principle as yet discovered in the bile, bearing the same relation to this fluid that urea does to the urine, it is evident that the idea of physiologists, with regard to any excretory function of the liver, must have been very indefinite before the relations of cholesterine had been determined" (p. 278). We shall not here attempt to refute, we are convinced, the fallacious view of the author as to the function of the bile-acid salts, but will merely explain his views as to cholesterine.

Cholesterine, the author points out, exists in largest quantities in the brain and nerves, but is also found in the substance of the liver, in the bile and spleen, and in the blood. In experiments which he describes (p. 280–282), he determined the amount of cholesterine in the blood of the carotid artery, of the internal jugular vein, and of the femoral vein, and from these experiments he concludes, "It has been ascertained that the brain and nerves contain a large quantity of this substance, which is found in hardly any other of the tissues of the body; and these experiments show that the blood that comes from the brain contains a much larger quantity of cholesterine than the blood supplied to this organ. The conclusion is, then, that cholesterine is produced in the brain, and is taken up by the blood as it passes through this organ."

In a second set of experiments, Dr Flint determined the relative amount of cholesterine in the blood of the portal vein and of the hepatic veins, and found that the quantity in the latter was much smaller than in the former, indicating that during its passage through the liver, a great part of the cholesterine in the blood is removed.

Dr Flint's views as to cholesterine being the true excrementitious principle of the bile are supported by a reference to pathological cases. He ascribes the grave nervous symptoms which supervene in some cases of jaundice "to a deficiency in the elimination of cholesterine—the true excrementitious principle of the bile—and its consequent accumulation in the system. Like the accumulation of urea in structural disease of the kidney, this produces blood-poisoning; and we have characterized this condition by the name of Cholesteræmia—a name expressing a pathological condition, but at the same time indicating the physiological relations of cholesterine."

We appreciate very highly Dr Flint's attempts to elucidate the origin and transformation of cholesterine in the system; still, we feel that he is inclined to infer more than facts at present allow us to do. We believe that cholesterine is present in comparatively large quantity in the nerve-tissue, that it is found in larger quantities in venous than in arterial blood, and that the liver probably is the organ concerned in its elimination; still we cannot see any grounds for jumping to the conclusion that the excretion of cholesterine constitutes one of the great functions discharged by the liver.

Chapter X., on the Production of Sugar in the Liver, appears to us admirable, and we think that the author has been most successful in reconciling the apparently discordant observations of Bernard and Pavy; we believe that the immense majority of physiologists who have for themselves examined the question, will be inclined to the opinion that every one of Dr Flint's conclusions (p. 315) is perfectly warranted.

We cannot devote more space to a critique of Dr Flint's very useful and valuable book.

If we have felt compelled to criticise it, we have not the less been inclined to admire and approve of it as a whole, for it is the work of a well-informed and original physiologist, and will, we feel sure, be hailed with pleasure by earnest students of the science.

On Hernial and other Tumours of the Groin and its Neighbourhood, with Practical Remarks on the Radical Cure of Ruptures. By CARSTEN HOLTHOUSE, F.R.C.S., Surgeon to the Westminster Hospital, and Lecturer on Surgery at its Medical School. Pp. 168. London: John Churchill and Sons: 1870.

WERE the patriarchial duration of life insured to us all, could we be sure of having the best part of a thousand years at our disposal, then we might be able to appreciate and enjoy the fearful number of books that at present flood the medical press. Our present space, however, preaches brevity to the writer, and selection to the reader. We trust Mr Holthouse will pardon us when we say that this book of his would have been far more valuable had there been less of it; and, after all, it is not very large. Still the real instruction it contains might have been compressed into one short and consequently useful article in a medical journal—he need not have made a book of it. Amidst a lot of mere padding, such as one expects to find in long-winded systematic treatises on hernia, there are here and there good hints, and even original observations.

The examination of the groin where a hernia is suspected is well described, and practitioners, as well as students, will do well to remember that a complete exposure of the part is necessary for the comparison of the two groins, and that the patient should be made thoroughly to project the groins forwards, by elevation of the pelvis and depression of the shoulders and heels, if a small hernia is to be discovered in a fat patient.

We are inclined to agree with Mr Holthouse in his opinion (at variance with authority), that the sudden occurrence of a complete hernia in an adult is by no means uncommon, and also that this *suddenness* necessarily implies the previous existence of a hernial sac, and, as a consequence, that such a hernia is either a *congenital* or an *infantile* one, though occurring for the first time in adult life.

The following is a table, giving a bird's-eye view of the author's ideas as to the varieties of inguinal hernia:—

Oblique inguinal hernia.	Ordinary.	Sac formed gradually.	Incomplete or bubonocele.	Hernia in the inguinal canal.
			Complete or scrotal.	Hernia above the testis.
	Congenital.	Sac ready formed.	Inguino-scrotal.	Hernia above the testis.
				Hernia in front of and in contact with testis.
			Inguino-crural.	Hernia in bend of the thigh between the skin and aponeurosis of the external oblique muscle.

The chapters on the conditions of hernia are diffuse—contain nothing novel. Some good but long-winded cases, including an awful *in terrorem* one (page 54), in which an anonymous "surgeon" injected a hernia, mistaking it for a hydrocele. Mr Holthouse teaches rather more strongly than we would be inclined to do the advantages of delaying operation in cases which are temporarily irreducible. He says, "No cutting operation ought to be undertaken for a recent irreducible hernia unless the symptoms of strangulation are persistent as well as unequivocal" (p. 77).

In our experience practitioners are too apt to delay as it is before summoning a surgeon. Where are we to draw the line which makes a strangulation *persistent?* Strangulation for twelve hours may kill the bowel.

The chapter on Non-Hernial Tumours of the Groin contains some curious cases, but several are old acquaintances—three quoted at length from Pott, as if Pott had been recently discovered, or only one copy of his works existed.

The last chapter, on the Radical Cure of Rupture, is excessively mild, containing one unsuccessful case of the seton operation by Mr Holthouse; another by Carnochan of the same operation; and ten pages of small type quoted from Mr John Wood's excellent treatise.

We could wish we had more to say in favour of this latest work from the pen of one so much liked and respected as Mr Holthouse is; but it is not by the publication of ephemeral little brochures like this that science advances or reputations are made.

A System of Surgery, Theoretical and Practical, in Treatises by various Authors. Edited by T. Holmes, M.A. Cantab.; Surgeon and Lecturer on Surgery at St George's Hospital; Memb. Correspond. de la Société de Chirurgie de Paris. Second Edition, in five volumes, with Illustrations. Vol. III., *Diseases of the Eye and Ear, and of the Organs of Circulation, Muscles, and Bones.* London: Longmans, Green, and Co.: 1870. Pp. 836. 65 woodcuts and 6 coloured plates.

The third volume of this important work still keeps up its reputation, and is even in some respects an improvement on the first edition. The illustrations are less pretentious but more useful than those of the first volume of the second edition, and the changes (not very extensive) in the letterpress seem all to be changes for the better.

The first and longest treatise in this volume is the one on Diseases and Injuries of the Eye by Mr Dixon, which, in the first edition, was at the end of the second volume. It seems to have been carefully revised, is thirty pages longer than it was, and has been considerably altered in its arrangement. Among other changes, one will be read with much interest. Mr Dixon was never carried away by the rush of excitement over the discovery of iridectomy—indeed, rather held the position of *advocatus diaboli;* and in 1861, he showed how the use of the operation was limited to a certain class of cases, and even doubted whether its advantages were not due simply to escape of the aqueous humour and consequent relief of pressure. In 1870, he recommends an operation involving a less complete removal of the portion of iris than that of Graefe, and speaks in certainly less doubtful terms of the good results which follow well-performed operations in well-selected cases. Mydriasis and myosis are more fully discussed in 1870 than in 1861, and the student will find a much fuller account of the various operations for extraction of cataract in the new volume, though it is easy to see where the author's affections are fixed—on the old difficult but successful operation of flap-extraction by Beer's knife.

Mr Hinton's paper on Diseases of the Ear is considerably enlarged and improved. He lays more stress on, and has evidently obtained much more experience in, the operation of incision of the tympanum for the removal of pus or inspissated mucus from the middle ear and the mastoid cells. He records one remarkable case, in which this operation enabled him to remove a mass twice the size of a marble, with the result of curing a deafness which had been more or less permanent for five years. He says, "It is my belief that if this affection were always rightly treated in its earlier stages, at least a third of the cases of confirmed deafness would be averted" (p. 299).

The papers on Diseases of Absorbents, Veins, and Arteries, by Messrs Moore and Callender, are little altered, either in size, arrangement, or contents. By the lamented death of the former gentleman, Mr Holmes has lost one of his most painstaking and conscientious fellow-labourers.

Of the rest of the volume, more than 300 pages are written by the editor, and, as usual, show that industry, power of arrangement, and clearness, which characterize all Mr Holmes's work. The paper on Aneurism is exceedingly interesting, and is improved in style and arrangement by being written entirely by one man, instead of, as in the other edition, being a joint production.

Mr Tatum's paper on Diseases and Injuries of Muscles, Tendons, and Bursæ, is revised and slightly enlarged by Mr Lockhart Clarke. He has greatly added to its value by his remarks on the pathological changes in muscle as shown by the microscope.

We write this notice with a deep feeling of sympathy with Mr Holmes in his present illness, due, it may be, in part to the self-forgetting toil he has expended on the pages we have been reading, but with the hope that his health may be restored, and that he may be again able to return to his many labours for science.

Hysteria: Remote Causes of Disease in general; Treatment of Disease by Tonic Agency; Local or Surgical Forms of Hysteria, etc. Six Lectures delivered to the Students of St Bartholomew's Hospital, 1866. By F. C. SKEY, C.B., F.R.S., etc., Consulting Surgeon to St Bartholomew's Hospital, etc. Third Edition. Longmans, Green, Reader, and Dyer: London: 1870.

THERE is a well-known old adage, "that at forty a man is either a fool or a physician." Now, Mr Skey is certainly not a fool, and though he is a surgeon, is also a man; so we need not be surprised at his proving himself, as he does in this book, a very sensible and apparently successful physician.

The fact that this little work has already reached its third edition so far proves its success, and renders it unnecessary for us now to analyze its contents. A few sentences for any who have not seen it will suffice. The great object aimed at is to direct attention to the nature and treatment of those most numerous and perplexing cases in which real lesions are imitated by nervous symptoms no less real, but which require treatment totally different from that needed by the others. That these neuralgiæ or neuropathes occur in both sexes at all ages, in most unlikely conditions, is proved by numerous most interesting and well-told examples. The book is most amusing, very pleasantly written, and easily read, and contains many excellent hints both as to diagnosis and treatment. It has the ripeness which its author's large experience would warrant us in expecting; at the same time it is neither dull nor behind the age. In one opinion, we think, Mr Skey is mistaken. He thinks we are still all Sangrados. "The majority of our profession," he says, "are biassed in favour of depletive measures. They consider diseases to originate in excess of vitality, and to be the product of undue force." In the Lothians we are rather too much inclined to treat the organisms, especially of the wealthier patients, as if they were empty cisterns that could be very rapidly filled with beef and wine, without any process of assimilation. Nothing is easier than to order beefsteaks and porter, while nothing shows a sensible physician more distinctly than his manner of suiting the nourishment to the patient's stomach.

Mr Skey's views may be given in his own emphatic words:—"I consider the treatment of the great majority of diseases to consist in increasing the quantity of healthy blood and giving force to the action of the heart. *You can't cure disease with a feeble pulse.* Mend the pulse, and Nature will do the rest of the work. On this principle disease in general may be treated, so far as my observation has gone, with pre-eminent success. In order to appreciate fully its force, you must start with the conviction that Nature cures and not man—man removes obstructions from her path, and nothing more." (P. 28.)

We believe nothing would tend more to the advancement of our profession in its practical and therapeutical knowledge, than similar little books written by the seniors, just giving the cream of what they have learned by experience, the sort of gold dust that remains to them after the sifting of years. Old men are not able to write systems. They ought not to have time for such work, and they only give us the systems of the past generation; but all old men ought to be able to write a few aphorisms which should be imperishable, or tell in a few words what they have learned. Happy those who, like Mr Skey, have learned something which they can tell pleasantly.

Transactions of the Obstetrical Society of London. Vol. XI. London: Longmans, Green, and Co: 1870. Pp. 345.

The Transactions of the Edinburgh Obstetrical Society. Edinburgh: Maclachlan and Stewart: 1870. Pp. 207.

IN both of these volumes we observe a very objectionable trait, and that is the interpolation of the remarks of members at the end of the various papers; these remarks receive, we consider, a perfectly sufficient publicity in the medical journals of the period, and ought not to be included in the Transactions—an honour which ought not even to be accorded to all the papers indiscriminately, but reserved only for the more valuable.

Amongst the many good papers of more or less purely obstetrical value contained in the London Transactions, there is one which possesses a much wider interest, and that even not purely professional—we refer to the report of the Infant Mortality Committee (p. 132). This originated in a request made to the Obstetrical Society by Dr Farre, that they should collect information for him from the various members as to the treatment and management of infants in this country, with the view of ascertaining the extent and causes of infant mortality; and the result has been a report of very considerable interest in regard to many points. From this it appears that among the poor in villages, and in large manufacturing towns in England, no less than from 30 to 90 per cent. of the women are delivered by uninstructed females; in Glasgow, 75 per cent. are delivered by partially uninstructed midwives; and in Edinburgh, attendance by midwives occurs only to a very trifling extent. The more important part of the report, however, refers to the feeding of the infants; and in regard to this, it is astonishing how unanimous all are in recommending, where artificial feeding is required, the dilution of cow's milk with water, even Dr Routh recommending one-third of water to be added. Where there is such unanimity, it may seem presumptuous for us to differ; but from a considerable experience in bringing up children, we have no hesitation in saying, that this is perhaps the point least understood by medical men generally; and we agree with Dr Hiram Corson (*Trans. of the Med. Soc. of the State of Pennsylv.*, 1868), that there is no difficulty in bringing up children by the hand, provided they have a sufficient supply of undiluted cow's milk, administered by means of a bottle kept scrupulously clean. A child of a month old will take a pint of milk daily, many will take a quart; the mean lies between the two; but to add one-third of water to this is to overburden the child's stomach, or rather to deprive it of nourishment to the extent of one-third of its requirements. A small proportion of lime-water is an advantage, and also the addition of sugar of milk, but of water never—to add this is merely to starve the child *secundum artem.* While fully agreeing also with the remarks made on the impropriety of feeding children on starches, such as arrowroot, we would certainly except the farina of whole grains, such as barley-meal, or, better still, gruel made from groats, which contains quite sufficient nourishment of a sufficiently perfect character to feed a child, even without the addition of milk, or with only a proportion of cream added; and we know several children, unable from idiosyncrasy to digest cow's milk, who have been brought up from birth upon groat-gruel alone, and who yet were perfectly nourished. The report contains also a considerable amount of information in regard to the dress of infants, and other hygienic matters, as well as upon illegitimacy and baby-farming; but for these we must refer to the report itself, which is well worthy of consideration.

The Transactions of the Scotch Society is the first volume issued by it, and contains a number of most interesting papers, besides an appendix, containing a catalogue of all the papers communicated to the Society from its commencement, which we owe to the zeal of the accomplished editor, Dr R. Peel Ritchie. This is a most valuable contribution to obstetric bibliography, and, being alphabetically arranged, any one can most readily ascertain the contributions to the Society upon any special subject, and by reference to the date can at once turn to the page in our Journal where what he desires is to be found, all the proceedings of this Society from its commencement being fully reported in our pages. Dr Ritchie deserves the thanks of all interested in obstetrics for this most careful and laborious compilation, which will be found to include many of the most important papers in that branch of medical science brought before the profession during the last thirty years. An indication of this importance may be found in the fact that for more than half of this time the late Sir James Y. Simpson was the President of this Society. It is somewhat singular, now that the question of the fittest form of memorial to perpetuate his name is being agitated among us, some wishing it to take the form of a maternity hospital, as that which he himself would most have desired, and others deprecating this as inconsistent with his views in regard to hospitalism,—it is somewhat singular, we say, that in this volume there should be an abstract of a communication from Sir James himself upon the construction and salubrity of maternity hospitals, in which, far from deprecating their construction, he shows how they ought to be constructed, with the view of preventing that great mortality to which they were too often liable. It is a practical commentary, in fact, upon his papers on Hospitalism, showing that all the startling facts he collected were not accumulated for the purpose of sweeping hospitals from the face of the earth, as some seem to have supposed, but only with the view of showing how these necessities of our civilisation could be so improved as to reduce their mortality to what might be called a merely normal amount. And it is sufficiently characteristic of the truth of this view, that at the conclusion of the meeting before which this address was made, a motion was made by Dr Keiller, and unanimously agreed to, " That a new maternity hospital is necessary for the credit of the medical school of this city, and that the hospital should be included under the care and direction of the managers of the Royal Infirmary." This resolution, unanimously come to, is sufficiently indicative, we think, of what Sir James himself thought requisite, and we feel sure that he would have considered himself as highly honoured by having his name associated with a worthy hospital of this character.

Stammering and Stuttering: their Nature and Treatment. By JAMES HUNT, Ph.D., etc. Seventh Edition. Edited by the Rev. H. F. RIVERS, M.A., F.R.S.L. London: Longmans, Green, and Co.: 1870.

THIS work, as written by the late Dr Hunt, is already well known as a complete and exhaustive resumé of all that has been written on the subject of stammering and stuttering since the days of Demosthenes, and as a thoroughly practical treatise on the treatment of these affections, and its excellence is fully attested by the number of editions through which it has gone.

In reading the historical portion of the book, it strikes us as most remarkable that so little real work has been done, and so little information can be gathered from the mass of writing with which the public has been favoured. In fact, excepting the first chapter, this division of the book is wearisome and almost unreadable.

Throughout the work there are many good and practical remarks and suggestions, though no special method of treatment is described. Our author seems rather to aim at giving a statement of the pathology of the disease as understood at present, along with a history of the various steps which have led to these conclusions.

It is to be regretted, however, that more is not said as to the method of treatment adopted by our author. For, though we agree with him that each case must be considered alone, and that what suits one case may not be applicable to another, still we think that something more might have been told us as to the style of treatment he adopted, had our author wished to be communicative.

Dr Hunt has taken the proper view of the pathology of the painful and distressing disease of which he treats. There can be no doubt that the affection is seated in the nervous system. Dr Hunt, in describing the different varieties of stuttering, according as it is associated with deranged function of the jaw, tongue, or respiratory apparatus, affixes the term "mania"—for example, *Pneumo-gnathomania*, *Pneumo-glossomania*, etc. (p. 241). To this use of the term "Mania" we must take exception, as it is unscientific, and liable to cause confusion.

We cannot but commend the careful and laborious diligence of Dr Hunt and his editor Mr Rivers, and we recommend their work as a most excellent history of the literature of stuttering, and a thoroughly sound and practical treatise on the pathology and treatment of the disease.

The Preventive Obstacle, etc. By Dr Bergeret. Translated from the third French edition by P. De Marmon, M.D. New York: Turner and Mignard: 1870. Pp. 182.

This is a work upon a subject which English authors seem afraid to treat of professionally, from a species of mock modesty which makes them reticent when they ought to speak out. It is not a pleasant work to read, but we believe it may be extremely useful. Recent experience in the newspapers has shown that fraudulent vice is rampant in this country to a degree hitherto unsuspected; nay, we know that even now continual endeavours are being made to seduce young men into unlawful vice, and to instruct them in the most frightful immorality by abominable communications conveyed to them anonymously through the post. And we consider that in the face of such fearful struggles for empire on the part of vice, it is incumbent on medical men generally to have as watchful an eye upon the male as upon the female generative system, and to take every opportunity of impressing their patients with the importance of Astruc's aphorism, "Caste vivat, qui se sanum cupit," he who desires to be healthy must live chastely. A work like the present is most instructive; and though the facts detailed are perhaps exceptionally startling, every one who has made any inquiries into the subject, or has had any experience in regard to it, must be aware of the frightfully injurious results of sexual crimes, and of the certainty of their occurrence, though often long postponed. Of nothing can it be more truly said than of sexual crimes—"Be sure your sin will find you out."

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XLIX.—MEETING XII.

Wednesday, 6th July 1870.—Dr BENNETT, *President*, in the Chair.

I. THE ANTAGONISM BETWEEN CHLORAL AND STRYCHNINE.—*Dr Bennett* stated, that in the course of his inquiries into the PROPERTIES OF CHLORAL, he had been led to investigate its relation to strychnia. In the *Medical Press and Circular* for 19th May, mention was made of a case of recovery in a dog from strychnia poisoning by Mr Groves of Plymouth. In this case, though the Battle's Vermin-killer which was taken was supposed to contain strychnia, this was not proved, nor was it shown that the dog had swallowed a poisonous dose. Dr Richardson had reported to the British Association for the Promotion of Science a series of cases experimented on for the purpose of showing the antidotal action of chloral to strychnia; but, unfortunately, all his cases had died. On the 21st February 1870, Liebreich sent a communication to the French Academy of Science, in which he showed that strychnia modified the poisonous action of chloral. What he proposed to exhibit practically to the Society was precisely the reverse of this—viz., that chloral was an antidote to a poisonous dose of strychnia. By a numerous series of experiments on rabbits and rats, he had clearly ascertained that the subcutaneous injection of 1-100th of a grain of strychnia in solution was, in these animals, invariably followed by a fatal result. The experiment he should now perform would be a comparative one. He had here two rabbits, each weighing 3¼ lbs.; into both he should inject, subcutaneously, 1-100th of a grain of strychnia in solution, following this up in one of the rabbits by the immediate subcutaneous injection of gr. xv. of chloral dissolved in water; at the end of fifteen or twenty minutes the former would become tetanized, dying asphyxiated from the effects of the strychnia, while the other would fall asleep at once, and, after sleeping from three to four hours, would awake quite well, after having one or two slight spasms, or perhaps none at all. This remarkable result had followed, not in one or two experiments only, but in a great many, which had been performed on rabbits and on rats in his laboratory. The exact relation of this singular experiment to the cure of tetanus was, however, not very obvious. Tetanus depended at one time upon reflex action radiating from a wound or injury, and at another on some pathological condition of the spinal cord or its membranes.

It was impossible to say whether chloral could cure tetanus until it was proved that it could prevent reflex action or modify the peculiar condition of the cord. (The experiment was then performed as described. The one rabbit appeared quite well, till at the end of sixteen minutes it leaped into the air and died tetanic; the other fell asleep at once, and was sound asleep still at the end of two hours, when the meeting closed. We are informed that in three hours it woke up perfectly well, had no spasms, and next morning was found eating its food as if nothing had occurred.)

II. *Dr Watson* showed BLADDER, URETERS, AND KIDNEYS, from a patient with stone. The bladder contained a large uric acid calculus. The preparation showed the ureters enormously dilated (the size of the large intestine); the pelvis of the kidneys similarly distended, and the structure of the left kidney, separated from its capsule and torn up into shreds, as it were floating in a large urinous cavity. The patient was sent from some distance in the country to the Chalmers Hospital on account of stone. He suffered considerably from the effects of the journey, and had been kept at rest to admit of the subsidence of the irritation. Dr Watson had never examined with the sound. At the end of a few days, symptoms of uræmic poisoning, accompanied with nearly complete arrest of urinary escape, manifested themselves. The introduction of the catheter failed to withdraw more than a teaspoonful of urine. The patient sank, after being comatose for a few hours. There had obviously been some degree of catarrhal inflammation of the bladder and ureters, and the thickening of the mucous membrane of the latter at the point of penetration through the vesical coats had evidently produced the obstruction which proved fatal. Dr Watson mentioned the features of an analogous case admitted to the Chalmers Hospital at the same time, and from the same part of the country; but the death of this patient so terrified the other that he made off to his home, and died within a few weeks with analogous symptoms. Dr Watson remarked upon the bearing which such cases ought to have upon the statistical results of operations for stone. Had he operated in these cases, in all probability fatal results would have ensued, the blame of which would have been laid at the door of the operation. In Dr Watson's opinion, many such-like fatal results should not be attributed to the operations, but to the conditions of disease and the constitution of the patient in whom they are performed.

III. A large URIC ACID CALCULUS, encrusted with crystalline phosphates, weighing 4½ ounces, removed from an old gentleman of 72 by the ordinary lateral operation of lithotomy. There was in this case an enlarged prostate, due to the presence of a fibroid tumour encapsuled in the gland. The extraction of the stone forced out the bisected tumour. There was copious venous hæmorrhage, which required plugging, but the patient was doing well.

IV. Half an ounce of fragments of a URIC ACID CALCULUS, removed by the scoop lithotrite and Clover's washing-bottle from the bladder of an elderly patient at one sitting.

V. Three drachms of fragments of a PHOSPHATIC CALCULUS, removed by the scoop lithotrite and Clover's washing-bottle from the bladder of a patient aged 64 at one sitting.

VI. The incisor portion of the ALVEOLAR ARCH, and the corresponding portion of the interior of the UPPER LIP, affected with epithelial cancer, removed from an elderly patient (female). The operation was effected without division of the lip; by simple eversion space was afforded to dissect away the cancerous disease from its interior. The base of the alveolar arch was then horizontally divided with the saw, and on cutting through the lateral attachments of this portion of the bone, after extracting a bicuspid tooth, complete extirpation of the disease was effected. The disease had commenced in the alveolar groove.

VII. A large OVOID EPITHELIOMA from the malar and zygomatic region, invading the external canthus of the eye. The disease was mapped out by two elliptical incisions, and dissected off the bone; a flap of skin from the cheek and submaxillary region was detached and slid upwards, so as to occupy the gap left by the excision of the disease. This was regarded as essential by Dr Watson, to avoid the deformity occasioned by cicatricial displacement of the eyelids, which must otherwise have taken place.

VIII. A large EPITHELIOMATOUS TUMOUR, attached to the base of the lower jaw, removed along with the involved portion of bone. The history of the case was one of epithelioma of the lower lip on the left side, removed some years ago. There had been no recurrence of the disease in the cicatrix, but a submaxillary lymphatic, which had, it seemed from the history of the case, been coincidently affected, gradually enlarged, became fixed, suppurated, opened on the surface, and had recently been attended with repeated attacks of copious hæmorrhage, so as to blanche the patient. The tumour and the adherent skin were included within an irregular line of incision of a somewhat star-like shape; the adherent portion of jaw was then sawn away, leaving the alveolar arch intact; and after dividing the floor of the mouth on the affected side, the tumour was readily dissected away from the digastric triangle.

IX. A small cherry-like TUMOUR, occupying the situation of the mental foramen of the lower jaw. This was accompanied with violent neuralgic pain, not only when touched, but also spontaneously, preventing rest at night. The only teeth in the lower jaw which remained corresponded to this situation. After disclosing the osseous surface to which the tumour was attached, the bone was cut away by two curvilinear incisions made through the bone from its alveolar margin, meeting beneath the mental foramen. This line of section was effected by means of a small flexible saw with movable back. On examining the cut surface, it was found to have divided the inferior dental nerve to the outer side of the mental foramen. The portion of nerve removed was more vascular and more succulent than natural, but presented none of the aspect of malignant disease. The nerve, at its point of exit from the foramen, was found involved in the tumour, its neurilemma being distinctly invaded by the cell-structures of the disease. There was no evidence of such change in the neurilemma within the canal. Dr Watson remarked, that on first effecting the removal, he feared it would be necessary to cut out a further portion of the jaw, to take away all trace of enlarged nerve-tissue—the extension of cancerous disease along the neurilemma of a nerve (*e.g.*, the optic) being a well-recognised mode of propagation and reproduction of malignant disease—after its removal had been apparently completely effected. The preparation proved that further interference was not required.

X. A case of SCIRRHUS OF THE FEMALE BREAST, from a patient who had come all the way from Rome to have the disease extirpated. The disease had commenced above the nipple, and had extended chiefly in the direction of the areola, invading and latterly destroying the whole nipple, which it had gradually puckered inwards, involving it in the cancerous disease, and, lastly, breaking it down by ulceration. There was a slight enlargement of a single gland under the pectoralis major. In these circumstances, Dr Watson effected the removal of all the glandular contents of the axilla as high as the border of the pectoralis minor. On examining the glands after removal, those under the border of the pectoralis major were found completely invaded with cancerous transformation, but no extension of the disease beyond this point could be recognised in any structure.

XI. A FOOT AMPUTATED BY THE ORDINARY ANKLE-JOINT OPERATION, on account of disease originating in a severe sprain of the ankle-joint. The tension of the parts, the copious discharge, and the exhausted and attenuated condition of the patient, forbade any delay. Before operating, the sinuses were forcibly injected with a strong solution of chloride of zinc (15 grs. to the ounce), and the operation then performed with every antiseptic precaution. The discharge for the first week was something more horribly fœtid than can be described, during which the patient suffered from exhausting diarrhœa. After, however, syringing out the sinuses and interior of the stump with strong carbolic acid solution (1–20) for a few days, till the slough separated, the fœtor entirely subsided, and, under the use of the carbolic acid dressings, the parts have gone on favourably. There has, however, since been a copious though odourless purulent discharge.

XII. The POSTERIOR PART OF THE FOOT, removed by the ordinary ankle-joint amputation, on account of sphacelation of the anterior part of the extremity. The case was the same as that from which Dr Watson had at the last meeting of the Society shown the sphacelated foot. The history of the case was one of accident, in which a casting of iron several tons in weight had fallen upon the foot, inflicting a severe bruise, and crushing in part the bones of the tarsus and metatarsus. Dr Watson had advised primary amputation, to which, however, the patient would not accede. He had therefore wrapped the foot and leg in antiseptic dressings, after syringing out with carbolic acid solution the aperture which existed beneath the external malleolus, and which communicated with the whole bruised and fractured parts. The anterior part of the foot had separated, an abundant suppuration attending upon the process. The amputation was rendered necessary to afford a sound surface upon which the patient's weight might be borne.

XIII. The BONES OF THE CARPUS, the extremities of the radius and ulna, and the bases of the metacarpal bones, removed by a single linear incision—a method of excision of the wrist and carpal joints which Dr Watson had already had occasion to bring before the Society, both in its application and results. The incision, as before pointed out, is made along the radial side of the extensor indicis. After dissecting aside the soft parts from the dorsal aspect of the bones of the forearm, carpus, and metacarpus, preserving intact the integrity of the tendinous sheaths, the trapezium is cut through with bone-pliers, and the thumb separated from the carpus; the wrist-joint is next opened from behind, the ends of the radius and ulna cut off; and on dissecting up the carpus and base of the metacarpus from the sheath of the flexor tendons, leaving the pisiform bone behind, and the unciform process of the unciform bone, the saw is applied to the metacarpal bones, and their base, so far as involved in the anterior carpo-metacarpal articulations, cut away. The remaining portion of the trapezium, and the base of the metacarpal bone of the thumb, are lastly cut away. The parts are adjusted upon a simple Gooch splint, adapted to the forearm and palm, the hollow of the radius and proximal portion of the carpal region being maintained by folding two strips of the Gooch splint over from the radial aspect of the splint so as to render it thicker upon its radial side, while the extremities of this additional strip are shaved away, so as to render it a smooth and gradual incline to the highest point of the radial arch. A pad of lint placed beneath the palm affords support, and as it is made thicker at the radial than at the ulnar side, the hand and forearm occupy a position between pronation and supination, but more closely approaching the latter.

XIV. The osseous parts removed in EXCISION OF THE ELBOW from a lad who had suffered for some time from gelatinous disease of the elbow-joint, and which had been treated elsewhere by two extensive linear incisions made on each side of the olecranon. The operation was performed by a single linear incision.

XV. The osseous parts removed in EXCISION OF THE ELBOW from a girl in whom gelatinous disease was in progress, and the movements of the articulation compromised. A single linear incision was employed as the preliminary step in the operation. The operation disclosed an abscess in the condyles of the humerus.

XVI. The parts removed in EXCISION OF THE ELBOW in a young girl. The external characters of the affection were those of gelatinous disease. The operation was performed by means of a linear incision. The section of the ulna exposed an abscess invading the base of the olecranon.

XVII. The parts removed in EXCISION OF THE ELBOW-JOINT effected for fibrous anchylosis.

XVIII. Concentric fibrinous laminæ and laminated BLOOD-CLOT, removed from an aneurism which had formed behind the internal malleolus in the case already detailed (No. 12). This aneurism had escaped observation under the antiseptic dressing, till, by giving way upon the surface, active hæmorrhage declared its presence. On being sent for to see the patient, Dr Watson applied a tourniquet above the knee, laid open the sac, cleaned out these layers of fibrinous substance and clot, and secured the posterior tibial at its point of communication with the sac.

XIX. *Dr Joseph Bell* showed a SPECIMEN OF TRANSVERSE FRACTURE OF THE PATELLA soundly and completely united by bone. It occurred in a patient aged 81; it was treated simply by a splint behind the knee, and rings of bandage above and below the fractured bone, approximated by side pieces of the same material. He was kept in bed about seven weeks. He died two years and a half after the accident.

XX. *Professor Spence* then read a paper ON THE STATISTICS OF AMPUTATIONS, in which he showed, by an elaborate series of statistics based upon four hundred and three amputations performed by himself, that the danger in any amputation did not depend so much upon the operation itself as upon the nature of the disease or injury requiring the amputation, and on the circumstances under which it was performed. Consequently any series of statistics which excluded these two data were of no value, except when employed for the purpose of proving the propriety of abandoning the operation; while statistics which elaborated these data might be useful in the future as indications of the causes which influence mortality, and which ought, where possible, to be avoided.

TABLE I.—GENERAL RESULTS.

LOWER EXTREMITY.		Total.	Recovered.	Died.
Hip-Joint		9	3	6
Thigh		155	100	55
Knee-Joint		1	0	1
Leg		53	37	16
Ankle		82	76	6
		300	216	84
UPPER EXTREMITY.				
Shoulder-Joint		23	17	6
Arm		33	21	12
Forearm		43	35	8
Wrist-Joint		4	4	0
		103	77	26
Total Upper Extremity	103			
„ Lower „	300			
		403	293	110

TABLE II.—RESULTS in relation to Injuries or Diseases for which the operation was performed.

STATISTICS OF AMPUTATION—LOWER EXTREMITY AT HIP-JOINT.

		No.	Recovered.	Died.
INJURY.	Primary	5	1	4
	Secondary	0	0	0
DISEASE	Malignant Tumour of Femur	2	2	0
	Malignant Tumour of soft parts	1	0	1
	Chronic Disease of Neck of Femur	1	0	1
	Total of Hip-Joint	9	3	6

AMPUTATION OF THIGH—INJURY.

		No.	Recovered.	Died.
PRIMARY		20	6	14
SECONDARY	Burns	3	2	1
	Acute Necrosis after fracture	2	0	2
	Gangrene (Traumatic)	4	1	3
		29	9	20

DISEASE.

	No.	Recovered.	Died.
Disease of Knee-Joint	79	67	12
Necrosis and Secondary Disease of Knee-Joint	13	8	5
Acute Necrosis of Femur (Idiopathic)	8	1	7
Necrosis of Shaft of Femur	6	4	2
Repeated Hæmorrhage after removal of Necrosed Fibula	1	1	0
Malignant Tumours of Femur	11	5	6
Malignant Tumours of Tibia	3	3	0
Erectile Tumour of Leg	1	0	1
Gangrene in Diffuse True Aneurism	1	0	1
Large Strumous Ulcers of Leg	3	2	1
	126	91	35
Total of Thigh	155	100	55

AMPUTATION AT KNEE-JOINT.

	No.	Recovered.	Died.
PRIMARY	1	0	1

LEG.

		No.	Recovered.	Died.	
INJURY	Primary	28	15	13	Railway and cart accidents.
	Secondary	3	1	2	
DISEASE		22	21	1	

ANKLE-JOINT.

		No.	Recovered.	Died.
INJURY	Primary	4	3	1
	Secondary Gangrene	1	1	0
	Contraction from Burn	1	1	0
DISEASE		76	71	5
	Total	82	76	6

UPPER EXTREMITY—AMPUTATION AT SHOULDER-JOINT.

FOR INJURY.

		No.	Recovered.	Died.
PRIMARY	Gunshot Wound	1	1	0
	Railway Injuries	8	4	4
	Machine Injuries	6	5	1
	Waggon-wheel passing over Arm	1	1	0
SECONDARY	—Effects of Burn	2	2	0
	Total	18	13	5
DISEASE	Subclavian Aneurism	1	1	0
	Malignant Tumours	4	3	1
	Total Injury and Disease	23	17	6

ARM—FOR INJURY.

		No.	Recovered.	Died.
PRIMARY	Gunshot	2	1	1
	Railway	6	2	4
	Machine Injuries	4	3	1
	Compound Dislocation of Elbow and Fracture	1	0	1[1]
	Total	13	6	7
SECONDARY	Traumatic Gangrene	3	2	1
	Necrosis after Injury of Forearm	1	1	0
	Effects of Burn	3	2	1
	Gunshot Wound of Hand	1	1	0
	Machine Injury of Hand and Forearm	1	0	1
		9	6	3
	Total for Injury—Primary and Secondary	22	12	10

ARM—FOR DISEASE.

	No.	Recovered.	Died.
Osteo-Sarcoma of Forearm	1	1	0
Strumous Disease of Elbow and Forearm	8	7	1
Results of Erysipelas	1	1	0
Acute Necrosis of Humerus in a Child	1	0	1
Total for Disease	11	9	2
Total Injury and Disease	33	21	12

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[1] A woman of intemperate habits, ætat. 70.

FOREARM—FOR INJURY.

		No.	Recovered.	Died.
PRIMARY...	Machine Injury	21	18	3
	Gunshot do.	6	5	1
SECONDARY	Traumatic Gangrene	1	1	0
	For Sloughing of Flaps after Wrist Amputation	1	1	0
	Total Injury	29	25	4

FOR DISEASE.

	No.	Recovered.	Died.
Erectile Tumour	1	1	0[1]
Disease of Carpus	12	9	3
Epithelial Cancer	1	0	1
	14	10	4
Total Injury and Disease	43	35	8

WRIST.

	No.	Recovered.	Died.
Primary	3	3	0
Disease	1	1	0
	4	4	0

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[1] In an infant six weeks old, in consequence of hæmorrhage from tumour.

Mr Spence remarked that the first and most important source of mortality in primary amputations, was to be found in that condition of the system termed shock, which may be accompanied and increased by hæmorrhage; and he remarked that one, and probably the greatest, source of difference between the mortality of amputations performed in the country, and those performed on similar patients brought into city hospitals, did not arise from any special insalubrity of the latter, but from the great increase of systemic shock consequent on the removal of the patient often many miles from the place where the accident occurs, and still more frequently without any adequate appliances to mitigate that shock, which he could state, from personal experience, was vastly increased by any transport, however short, even under the most advantageous circumstances. And he attributed the success of the only successful case of primary amputation at the hip-joint as yet performed in Scotland, much more to the diminution of shock consequent on the surgeon being taken to the patient instead of the reverse, than to the otherwise disadvantageous circumstances under which the operation was performed, or to the conditions in which the patient was placed. Mr Spence then referred to the condition termed pyæmia, as the most frequent cause of death in primary amputations in those patients who survive the primary accidents of shock and loss of blood; and he said that, while pyæmia was by many regarded as a disease of hospitalism, as it was the fashion to term it, it was one by no means confined to hospitals, and one, the occurrence of which, from considerable experience, he believed to be much more frequently determined by the condition of the patient himself, apart from his surroundings, than was generally admitted. Mr Spence entered somewhat at large into this part of the subject, and gave proofs in support of his view, directing special attention to the injurious influence of "operation wards," from the mental shock produced by the unfavourable issue of any operation on patients who had undergone a similar operation.

Mr Spence next entered on an elaborate inquiry as to the results of amputation for disease, showing, first of all, that the results of such amputations afforded convincing proof of the influence of circumstances upon mortality, they being so very much less fatal than amputation for injury; and, secondly, he pointed out that the nature of the disease for which the amputation was performed was itself an influencing circumstance of the greatest importance; and he detailed at some length the various conditions of disease which his experience had taught him exercised the most important influence upon the mortality of amputation.

Dr Gillespie remarked that he had heard Mr Spence's paper with great pleasure, and that, in the main, he agreed with him as to the causes influencing mortality after amputation, and as to the great importance of statistics which should point out these causes in detail; as thus alone could we obtain statistics of any value in enabling surgeons to avoid unnecessary dangers. He confirmed Mr Spence's statement as to the enormous risks run in the transport of patients long distances to hospital, and pointed out that the great cleanliness and care in dressing inculcated by the advocates of carbolic acid had unquestionably been of importance to the safety and comfort of the patients, whatever opinion might be entertained as to the peculiar views held by these advocates in regard to the agent employed.

Dr Joseph Bell stated that Mr Spence might well regard his tables with pride, but that he had by no means made the most of his cases, for many double amputations had been reckoned only single, and thus the mortality was made to appear larger than it ought. And this circumstance ought not to be forgotten, as well as the very serious character of the operations tabulated, which contrasted very strongly with other statistics recently published, in which amputations of the fingers and toes were made to do duty as primary amputations. He also showed from fourteen cases of primary amputation of the thigh, which he himself had performed, how much the results of primary amputation depended on concomitant circumstances, two of the cases having had both limbs amputated; another having at the same time a fracture of the skull; another a fracture of the spine, with dislocation of the other hip; while one never rallied from the shock of the operation.

Dr P. H. Watson remarked that these statistics, which were very large, were no less gratifying in their result, and rescued the profession from the opprobrium of being mere butchers, which of late had been cast upon them. The careful discrimination of the causes which led to the mortality was also most important, causing that vague and novel bugbear, hospitalism, to shrink into its own natural and insignificant proportions.

Dr Bennett stated, that it was impossible to criticize any mere series of amputations stated statistically, unless, as in the present one, a careful account was given, not merely of the results, but of the causes which led to the results; and in this way only could we emancipate ourselves from vague and empirical notions, and attain satisfactory and clear ideas, not only as to the actual amount of mortality after amputation, but also as to the cause of that mortality.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXIX.—MEETING XI.

27th April 1870.—Dr Bell, *President*, in the Chair.

I. ON THE SO-CALLED SYNCLITIC MOTION OF THE FŒTAL HEAD IN THE MECHANISM OF PARTURITION. BY DR J. MATTHEWS DUNCAN.

This paper appeared in the June number of the Journal, p. 1061.

Dr Milne said that in his paper, to which he (Dr M.) had listened with pleasure, Dr Duncan had dealt some heavy blows at Kueneke's theory. To maintain the syncliticism which existed from the brim down to about the middle third of the sacrum, an elongation of the anterior pelvic wall would be required; for the synclitic movement would cease when parity of resistance anteriorly and posteriorly ceased. The lateral shear, and the overlapping of the parietal bones, were also adverse to this synclitic theory, as well as the almost invariable presentation met with, which traversed, not the sagittal suture, but the parietal bone.

A number of questions were put to Dr Duncan, for the purpose of further elucidating the subject.

II. ON A CASE OF INFANTILE SALIVATION BY A QUACK MEDICINE. BY DR CAIRNS.

III. TEDIOUS LABOUR FROM ENLARGED BODY OF THE FŒTUS. BY DR JAMES CARMICHAEL, BURNTISLAND. COMMUNICATED BY DR MATTHEWS DUNCAN.

At 5 A.M., on the 12th March, I was called to see Mrs M., æt. 30, in her second confinement. Former labour natural, nineteen months ago. She had been in labour seven hours before my arrival. Pains recurred every half or three-quarters of an hour, and were by no means strong. She had last menstruated in the beginning of August.

The hand, applied over the abdomen, detected that the uterine contractions were regular, but by no means powerful. Abdomen very large. Fœtus readily felt; much more bulky than natural, and having an unusual soft feeling.

Per vaginam.—Os uteri fully dilated; both feet of fœtus in the vagina. Pains still continue slight, but now rather more frequent (every quarter of an hour or twenty minutes). The woman has a good pulse, and is quite easy and comfortable. Traction now made by feet; but everything quite immovable. After waiting for four hours, traction again made, when one leg gave way, and was separated at the hip. The hand was now introduced along the body of the child; the belly was found directed towards the sacrum, and enormously distended and soft. The hand was with difficulty passed up as far as the neck of the child, when the head was found to be laterally flexed, and pressed down upon the body, and an arm under the chin. The fœtus was of a globular form. On consultation with Dr Young, it was agreed to evacuate the contents of the belly by incision or puncture, as the only means of effecting delivery.

A perforator was accordingly passed up to nearly the umbilicus, and pushed into the belly, when at once there was a gush of yellowish brown fluid, more or less tinged with blood, from the maternal passages. By pulling and tearing the abdominal parietes, the fluid was entirely evacuated; and, the body having collapsed, delivery was very easily effected.

The patient was under chloroform during the operation.

13th March.—Patient going on well; no complaint. Pulse 86; some milk in breasts. Lochia natural.

15th.—Doing well.

18th.—Out of bed, and has made an excellent recovery.

The fœtus proved to be monstrous in several respects, and will be carefully described elsewhere. But the chief points of obstetrical interest regarding it are the following:—It was a globular mass, consisting of the trunk, which had been distended with fluid. To this globular mass were attached the extremities, and on the top of it was the head, not only laterally flexed so as to lie with one of its sides on the globular mass, but also laterally compressed. The chief part of the globular mass was the distended abdomen; and the chest, flattened out, formed the upper wall of the abdomen. The abdomen was distended chiefly by the expanded bladder. In consequence of the want of connexion between the kidneys and bladder, subsequently ascertained by Drs Sanders and Pettigrew, it is to be regretted that the contents of the bladder were not saved for examination. When the abdomen was filled with water, its girth was found to be 2 feet. A cord put around the abdomen, from ensiform cartilage, by sides, and on to the pubes, measured 2 feet

3 inches. The capacity of the whole abdomen, as measured by the quantity of water required to fill it, was 93 ounces. The capacity of the bladder was 40 ounces. The bladder measured 9 inches from apex to base, and 5½ inches transversely.

In general respects, the fœtus was fully developed, and of usual size. It was a male.

Dr Cairns said that he had, ten days ago, a similar case. Dr Keiller got the preparation. He was sent for at 2 A.M. A midwife was conducting the case. Head had been born for two hours, and pains ceased. There were no signs of life whatever; applied traction, but failed. He squeezed the head off, and one arm. The abdomen was filled with two gallons of serous fluid. He ripped up the belly with scissors, and removed the child bit by bit. The result was recovery of patient. After a bottle and a half of sherry had been administered, the woman continued to improve, without a day's illness.

Dr Thomson said that Dr Carmichael's case was very rare, and displayed able treatment.

SESSION XXIX.—MEETING XII.

11th May 1870.—Dr BELL, *President*, in the Chair.

J. H. Croom, M.B., C.M., and Angus Munro, M.B., C.M., were admitted as Ordinary Fellows of the Society.

Dr Bell, in moving that the public business of the Society should be adjourned for a fortnight, alluded in feeling terms to the great loss the Society had sustained by the death of Sir James Simpson.

The motion was seconded by Dr Burn, and unanimously agreed to.

Part Fourth.

PERISCOPE.

SURGERY.

DORSAL DISEASE OF THE TOES. BY M. A. DUBRUEIL.—If the name I give is new, the disease certainly is not; it is well known to all surgeons, and if not yet described, it is doubtless in virtue of the proverb—*De minimis non curat prœtor.*

Still, as it sometimes necessitates the amputation of the toe in which it is seated, it is well worthy of the attention both of the surgeon and orthopædist.

Dorsal disease of the foot is a disease of which the starting-point is an inflammation of the abnormal serous bursa, developedbe low a corn, which forms on the dorsal surface of a toe. This corn is most frequently placed on the centre of the joint between the first and second phalanges, and on those toes which, for one reason or other, are placed on a higher level than the others. Very often the two last phalanges, instead of being placed almost in the same axis as the first, form with it an angle more or less approaching a right angle; hence the name, hammer toes. These corns are certainly due to the pressure of the boot, and their microscopic examination is interesting. They differ much from ordinary corns, with which they are apt to be confounded. The true corn consists simply of an accumulation of epithelial cells, and has at its base a conical root, which projects into the true skin. The callosities we are now speaking of are very different in nature. The epithelial layer is certainly projecting, and its cells are flattened and stratified; below them the Malpighian layer remains intact, but more deeply a most remarkable papillary hypertrophy is seen. These papillæ, which still remain simple in structure, become nearly a line in height—a most enormous size for that position. Then below the skin appears a serous bursa lying over the extensor tendon, the internal surface of which is lined by pavement epithelium. This is the structure of the callosity which is the seat and starting-point of the disease we are describing.

In many cases it remains all through life in a state of quiescence, but sometimes, under the influence of a rapid walk or of severe pressure, it becomes the seat of inflammation. The lesion begins in the serous bursa, where an increased secretion of fluid, soon becoming a true abscess, distends the walls. This is accompanied by severe pain. The pus, once formed, tends to become superficial. It soon appears on the dorsum of the toe, covered only by a thin layer of skin; and one is tempted to believe that the whole affair is only an abscess below the skin. If let alone it opens spontaneously, and a fistulous opening remains, the starting-place of which is the cavity of the bursa; an ichorous sanious discharge bathes the toe, which becomes more and more swollen and painful. The pressure of the boot is intolerable, and walking impossible. At length the inflammation ends by invading the joint beneath, and soon complicates affairs by destroying the articular surfaces. One must thus recognise four stages in the progress of this disease of the toes:—

1. An indolent callosity. 2. Formation of an abscess. 3. Establishment of a fistula. 4. Destruction of the joint.

The treatment varies according to the period of the disease. While the corn is still indolent, prevention of pressure by suitable boots, and attempts to restore the toe to its place. When the inflammation begins, soothing measures; but when pus has once formed, it should be evacuated, and the formation of a fistula prevented by exposing the little bursa completely, and in bad cases destroying its remains by nitrate of silver. When the fistula is already formed, the same treatment will be necessary. If the joint is opened into, which will be easily recognised by rubbing the joint surfaces together and feeling them rough, amputation must be performed, either by disarticulation at the joint, or, still better, by removing the whole toe.—*Gazette des Hôpitaux*, No. 53, 1870.

TETANUS AND CHLORAL.—M. Verneuil communicated a notice, by Dr Dufour of Lausanne, of three cases of tetanus treated by chloral. In two of the cases, which the author merely mentions, the tetanus was very rapid, and death occurred before the chloral had time to act. In the third, which is detailed, the disease was not so rapid, and yielded to the administration of chloral.

A young man, aged 26, was admitted to hospital for numerous injuries received in an explosion in a mine. The right eye was destroyed and the left eye wounded. The right wrist and left hand were both injured. On the 16th day after the accident trismus commenced. 30 grains of chloral were given with great relief, but in the evening the spasms returned. For five or six days the daily dose of chloral needed was 100 grains. On the 21st day 240 grains were required before sleep was obtained. On the 25th the patient was very weak. Morphia was given on the 28th; the spasms again returned; morphia was of no use. On the 31st day, excessive reflex irritability. Cramps of muscles of back and arms; again chloral was given, 180 grains daily; the patient slept, and from this date he steadily improved, all tetanic symptoms having ceased by the 30th day from the commencement, or the 46th from the accident. He returned home in another fortnight. Dr Ronge objected, that the disease was of such a chronic type that it might have recovered under the use of morphia or anything else.

Dr Dufour answered to this, that the very chronic character of the disease was due to the administration of chloral early and in large doses; and that the chloral, without actually cutting short the tetanus, seemed to diminish its intensity, and relax the severity of the spasms.—*Gazette des Hôpitaux*, No. 65, 1870.

ORGANIC STRICTURE OF THE URETHRA IN THE FEMALE.—Neither organic nor spasmodic strictures are often seen in the female; but there is a lesion by no means rare, and which may be called a true organic constriction—I mean tumours of the meatus urinarius, not encephaloid or cancerous, but simply fibrous or vascular. The causes of these are obscure—possibly inflammatory attacks; and also the physiological congestion of the parts caused by frequent pregnancies may explain some of the cases. Some are due to a hypertrophic condition of the peri-urethral cellular tissue, the result of the pressure of an anteverted uterus. Some cases, like the following, are inexplicable:—

A widow, aged 45, had no children, and always enjoyed perfect uterine health; has for two years had intense difficulty and pain in micturition; when it became almost impossible, she was examined, and a tumour was found compressing and almost closing the meatus urinarius. The tumour was of a rosy-white colour, about the size of a pigeon's egg, situated just across the meatus, and between the nymphæ; it was pierced by a very narrow canal, which was the urethra, and which admitted only a thread-like bougie. The tumour was evidently purely fibrous, and tolerably vascular. The tumour was easily removed entire by the aid of Maisonneuve's *serre-nœud;* very slight bleeding followed, which was easily stopped by the use of caustic. Cure was complete in three days.

An examination of the tumour showed that a portion of the mucous membrane of the urethra was involved in it, and that it consisted of an hypertrophy of the tissues round the urethra, and that it was a true organic stricture.

Regarding the risk of return, four months have now elapsed since the operation, without any evidence; still, it is no doubt quite possible that it may re-form.—*Gazette des Hôpitaux*, No. 73, 1870.

Part Fifth.

MEDICAL NEWS.

UNIVERSITY OF EDINBURGH.—GRADUATION CEREMONIAL.—On Monday, 1st August, at 10 A.M., the formal "capping" of the graduates in the Faculty of Medicine took place in the Assembly Hall, Castle Hill, in presence of a numerous attendance of ladies and gentlemen. The Right Hon. the Lord Justice-General, Chancellor of the University, presided; and was accompanied by Principal Sir Alexander Grant, the members of the Senatus Academicus, Dr Lyon Playfair, M.P. for the Universities of Edinburgh and St Andrews; Mr E. S. Gordon, Q.C., M.P. for the Universities of Glasgow and Aberdeen; and Dr Halliday Douglas, President of the Royal College of Physicians.

Professor CRAWFORD opened the proceedings with prayer.

Previous to the ceremony of graduation in Medicine, Professor MACPHERSON, Dean of the Faculty of Law, in appropriate addresses, presented for the honorary degree of Doctor of Laws, Henry W. Acland, M.D. Oxon., Professor of Medicine in the University of Oxford, etc.; and Professor Max Müller, also of the University of Oxford—both of which degrees were conferred amid loud applause.

Professor BALFOUR then presented the following gentlemen, who had been judged worthy to receive degrees in the Faculty of Medicine:—

DEGREE OF DOCTOR OF MEDICINE.—(Three stars indicate those who have obtained gold medals for their dissertations; two stars those deemed worthy of

competing for the dissertation prize; and one star, those commended for their dissertation.)—*Candidates who received the degree under the new statutes:*—Peter Buchan, Scotland; *James Spottiswoode Cameron, Scotland; William Hodgson Carruthers, England; ***Richard Caton, England; William Craig, Scotland; *Alexander Crombie; James Dunsmure, Scotland; ***David Ferrier, Scotland; *William Alexander Finlay, Scotland; *James Forrest, Scotland; Thomas Silvester Gell, England; Charles Bailey, Glenfield, England; Robert Bruce Low, Scotland; *Richard Lowther, England; Robert Lucas, Scotland; *William Paton Mackay, Scotland; *Harrison Mitchell, England; *Francis Walter Moinet, Scotland; Philip Henry Mules, England; William Nicholson, England; Walter Hugh Paterson, England; **John Wilson Paton, Scotland; Michael Welldon Rice, England; **Henry Sydney, England; Robert Shand Turner, Scotland; Yldefonzo Victor Watlington, Puerto Rico; Alexander Christy Wilson, Scotland; *Peter Alexander Young, Australia. *Candidates who received the degree under the old statutes:*—William Chapman Grigg, England; *Edwin Hinchcliff, England (first-class honours); *Charles Julian Jackson, England; James Alexander Menzies, Scotland.

DEGREES OF BACHELOR OF MEDICINE AND MASTER IN SURGERY.—Walter Duret Aubin, Jersey; John Bishop, England; Robert Blair, Scotland; Archibald Breloch (M.A. Glasg., Dr Sc. Edin.), Scotland; James Pitcairn Bookless, Scotland; James Brassey Brierly, England; William Brown (M.A. Aberd.), Scotland; Alexander Chambers, Scotland; William Copeland, England; John Archibald Cowan, Scotland (second-class honours); James Denholm, Scotland; Edward Harriman Dickenson (B.A. Oxon.), England; George Tait Dickson, Scotland; Walter Dixon, Australia; Richard Wright Dodds, Berwick-on-Tweed; James Williamson Edmond, Bengal (second-class honours); John Nicholson Fleming, England; Edward Flint, England; Arthur Edward Wellington Fox, England; John Fraser, Scotland (first-class honours); George Western Gipps, England; Alexander Gordon, Scotland; John Gibson Gordon, Madeira; Peter Macpherson Grant, Scotland; John Brodie Henderson, Scotland; William Balme Hepworth, England; Henry Walter Hill, India; Thomas Irvine, England; Walter Robert Spence Jefferiss, Scotland; William Gregory Keith, Ceylon; William John Kennedy, Scotland (second-class honours); Alexander Macdougall, Scotland (second-class honours); Duncan M'Gregor (M.A. Aberd.), Scotland; Robert M'Kerchar, Scotland; Hugh Marriner, England; Henry Charrington Martin, England; Thomas Dickenson Nicholson, England; John Nivison, Scotland; John Cunningham North, Wales; David Page, Scotland (first-class honours); Arthur Perigal, Scotland, received the degrees of M.B. and C.M. on 19th November 1869; James Reoch (M.A. Edin.), Scotland; James Turnbull Richardson, England; John Lloyd Roberts, Wales; Thomas Rutherford, Scotland; Henry Salt, England; Robert Spence, Shetland (first-class honours); William Thomas Wood, Scotland; Thomas Allan Wotherspoon, Scotland; William Wylie, Scotland.

DEGREE OF BACHELOR OF MEDICINE.—John Drysdale, Scotland; Henry Ambrose Lediard, England; Roderick Fraser M'Kenzie, Scotland.

DEGREE OF MASTER IN SURGERY.—John Brown Buist, Scotland, M.B. 1867.

The Ettles Prize of £40 to the most distinguished student for the year has been awarded to David Page.

After which Professor FRASER presented for the degree of M.A., Mr Robert C. Roberton (with second-class honours in Classical Literature), and Mr George G. Chisholm (with second-class honours in Mental Philosophy), who, owing to peculiar circumstances, had not been able to come up for their degree on a former occasion.

And Professor LAYCOCK then delivered the Graduation Address, in which he first enumerated the losses sustained by the University during the last four years by the deaths of Sir David Brewster, Professor Macdougall, Dr Robert Lee, John Goodsir, Sir James Y. Simpson, and James Syme, briefly enumerating the claims of each to the respect and esteem of the present and the future. From a consideration of the life-work of these great men, he pointed out what ought to be the life-work of the present graduates; and, passing in review in a broad and catholic spirit the connexion between general and medical education, he pointed out that the popular idea of the atheistical tendency of the latter had no foundation, except in its unsectarianism; and he congratulated the graduates in the possession of a life-work so certain, if steadily and unselfishly pursued, of securing competence and a good conscience, if not always fame and fortune.

Professor CRAWFORD then pronounced the benediction, and the newly capped graduates then received the congratulations of the Senatus.

INAUGURATION OF THE "BREWSTER MEMORIAL" STATUE.—Shortly after the Graduation ceremonial in the Assembly Hall, the Chancellor of the University, the Principal, the various Professors, the newly capped graduates, and a large number of friends, proceeded to the College, where arrangements had been made for the inauguration of the "Brewster Memorial" statue.

The statue is the result of a movement which originated at a meeting held in Edinburgh on 9th March 1868. At that meeting, which was presided over by Sir David Baxter, Bart., and which was attended by many leading citizens, resolutions were passed expressive of the loss to science and to the University which the death of Sir David Brewster had occasioned, and of the admiration and respect which were entertained for the talents and virtues that adorned his character; and a committee was appointed to take measures for having a statue erected to his memory. The work of collecting subscriptions was duly proceeded with; and upwards of £600 was received from amongst the private friends of the deceased, and the friends of the University. That sum being sufficient for the object contemplated, the execution of the statue was committed to the hands of our townsman, Mr Brodie, R.S.A.; and it was resolved that, when completed, the memorial should be erected within the University.

The figure is posed in an attitude at once easy and graceful. The venerable Principal is represented as in the act of lecturing. He is in a close-fitting dress; but the professorial robe and doctor's hood afford the desirable adjuncts of flowing drapery. The figure is poised on the left leg, the right being slightly advanced. The left arm rests quietly by the side, the hand holding a book, between the leaves of which the fingers are inserted. In the right hand is a prism, which the Professor is showing to his audience as if in illustration of a discourse on the properties of light. The peculiar bent of Sir David's studies is further indicated by the introduction of a stereoscope, which lies at the philosopher's foot, peeping unobtrusively from beneath the folds of his robe.

Lord NEAVES, on behalf of the committee of subscribers, in a neat and appropriate speech, presented the statue to the Chancellor of the University.

The statue was then unveiled, the band meanwhile playing the University air, "*Alma Mater.*"

The CHANCELLOR, on behalf of the Senatus Academicus, accepted the custody of the memorial statue, pointing out that the high scientific attainments, and the bright example of the Christian life of the late Principal, afforded the best possible practical refutation of the vulgar error that the ardent pursuit of science is incompatible with a firm belief in the tenets of our faith or with personal religion.

Professor MACLAGAN then returned thanks to Mr Brodie on behalf of the committee of subscribers for the admirable manner in which he had discharged the commission reposed in him, and expressed the thankfulness of the recipients of the statue that they had obtained so noble an acquisition to their College quadrangle, in the faithful representation of a Scotchman so highly esteemed by his compatriots, and so revered by his immediate colleagues.

A photograph was then taken of the scene, and the proceedings terminated by the band playing the Queen's Anthem.

THE THIRTY-EIGHTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION was held at Newcastle on the 9th, 10th, 11th, and 12th of August. The retiring President, Dr Chadwick, in opening the proceedings, referred to the powerful influence exercised by the Association in procuring the withdrawal of the Medical Acts Amendment Bill, pointing out that it was the duty of the Association to continue their efforts in the same direction, taking, however, a more comprehensive view of the subject, and not confining their efforts to the single subject of direct representation in the Medical Council. At the conclusion of his short but eloquent address, Dr Chadwick resigned the chair to the new President, Dr Charlton, who was accompanied by the Mayor and Sheriff of Newcastle, the latter a member of the profession, wearing their official robes, and preceded by the sword and mace.

Dr Charlton then delivered his address, which was received with great applause.

The address in Medicine was given by Dr Francis Sibson, who directed attention chiefly to the importance of rest and ease in the treatment of acute gout and rheumatism; iodide of potassium, and in some cases colchicum, being given as adjuncts in the former disease; no remedies, not even coloured water, in the latter. On this principle were treated 74 cases of acute rheumatism, 23 of acute gout, and 4 of a mixed disease. The result was that the inflammation of the joints ceased within eleven days in almost one-half, and within twenty-one days in five-sixths, except those afflicted or threatened with concomitant heart affection, in whom the joint affection was much more prolonged, exceeding twenty-one days in almost one-half of the number. Exactly one-half, however, of all the cases were affected by cardiac inflammation.

The address in Surgery was delivered by George T. Heath, M.B., and had for its subject modern operative surgery, which he described as being distinguished by its audacity, its conservatism, and its success, illustrating these characteristics by several interesting and well-selected examples. Various papers were subsequently read in the different sections, none of which, however, seem to call for any special notice. Mr Ernest Hart has been appointed editor of the Association Journal. The Association itself now numbers 4258 members, having elected 414 new members during the past year, and lost by death 156, leaving a gain to the Association of 258.

LIST OF THE CANDIDATES OF H.M.'S INDIAN MEDICAL SERVICE who were successful at the Competitive Examinations at Chelsea in February, and at Netley in August 1870, after having passed through a course at the Army Medical School, Netley.

	Name.	*Studied at*	*No. of Marks.*
1.	J. F. P. M'Connell,	London and Aberdeen,	5855*
2.	J. O'Brien,	Dublin and Cork,	5215
3.	J. O'M. M'Donnell,	Galway,	4878
4.	J. Reid,	Glasgow,	4683
5.	G. P. Mackenzie,	Edinburgh,	4418
6.	C. Sibthorpe,	Dublin,	4119
7.	J. A. Laing,	Edinburgh,	4065
8.	H. D. Cook,	Edinburgh,	3988
9.	R. A. Peterson,	Dublin and Galway,	3941
10.	T. S. Weir,	Dublin,	3681
	Maximum,	6900.	

CORRESPONDENCE.

REPLY TO MR WICKHAM'S PAPER ON LUNATICS BOARDED AT BALFRON.

To the Editor of the Edinburgh Medical Journal.

SIR,—In the last Number of the Journal, Mr Wickham, of Morningside Asylum, records his impressions of a visit to the insane boarded in private houses in and near the village of Balfron. Upon the whole, his paper, though commendatory in some parts, does not convey a favourable idea of their management there, at least as contrasted with asylums. His views, based on this solitary visit, are not in accordance with my experience, and are calculated unfavourably to influence the development of the scheme of "boarding out," which, if carried out to the extent it merits, and has reached in connexion with this Asylum—viz., about 10 per cent. of the inmates—would be a measure of really national importance. I deem it therefore necessary to reply to some of the statements in his paper; and all the more so, that at the meeting in Glasgow of the northern section of the Medico-Psychological Association, I read an account of my observations of the working of the system, and earnestly commended it to the consideration of the members.

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* Has been awarded the Herbert Prize.

First of all, it is to be explained that only a small proportion of the entire body of those who have been removed from this Asylum and the Royal Asylum, Gartnavel, to licensed private houses, are resident in Balfron; the greater number are lodged in or near other villages, a few miles distant. But it is to be especially noticed, that a number of the patients whose condition is described by Mr Wickham have not been removed from asylums at all: they are, I understand, staying under the care of relatives or friends, as they have always done. The pauper residing with her father, the male lunatic affected with paralysis, and the idiot child mentioned by him, belong to this class. I have no personal knowledge of them, but I have reason to believe that, in all respects, both they and the houses in which they reside have been much improved by the visits and influence of the Deputy-Commissioner in Lunacy.

I think that in the three first houses referred to our patients are resident; though, except in the case of the second one, I have been unable to identify them absolutely, either by the description in the paper, or from information received directly from Mr Wickham. Assuming that they are, let us see what that gentleman has to say about them. House No. 1. After stating that the condition of the lunatics was "very satisfactory," that they were quite "at home," and that "they seemed to be very happy," he strangely enough concludes unfavourably to their residence there, and solely from an impression that "they would be more useful in an asylum than they are at present." Now, from numerous visits along with Mr Muir, the chairman of the Glasgow City Parochial Board, Mr Morrison, the convener of our House Committee, and other gentlemen familiar with the management of the insane in asylums, who will corroborate my statement, I have no hesitation in saying that it is a mistake to suppose that such of them as can work are not sufficiently employed. If there be any risk at all, it is quite in the other direction—that of over-employment; and, in fact, in one case we thought it necessary to interfere where it seemed to us that the patient was too closely occupied.

Mr Wickham reports unfavourably of house No. 2. The house referred to, though not unsuitable, is probably the least suitable of all those for which we have obtained licenses; still, never at any of our visits has there been an approach to the condition described by

Mr Wickham. Moreover, Mr Brown, the medical officer of Balfron parish, has made satisfactory entries regarding it in the official register at his statutory quarterly visits, and also with respect to our patient who is boarded there. In connexion with this house, and also in reference to the other houses in this district in which our insane are lodged, I have to state that Mr Morrison, the gentleman already referred to, visited them all in the early part of this season, and reported that they and the patients were, without exception, in a thoroughly satisfactory state. And a few days ago, that gentleman, the chairman of our Board, two other directors, and myself, all long accustomed to visit the insane in asylums, inspected the whole of them again. To show that we are warranted to speak with confidence regarding the real condition of the patients, I may mention that their hair was carefully examined, that their clothing was so far undone as to expose the state of the flannel underclothing and the skin of the upper part of the body, that the bedding was turned down and inspected, and that all the insane were questioned respecting the diet and general treatment they received, apart from their guardians, the latter being requested to leave the room for a short time. Some of the houses were of course better than others; but, so far as the general condition of the lunatics was concerned, with two exceptions, a male and a female, the back of whose necks was not quite so clean as could be desired,—all was correct and merited commendation. The more intelligent patients were asked, in the absence of their guardians, if they wished to go back to either asylum, but, with one exception, they at once said that they preferred staying where they were. The exception was a woman who wanted to return to her relatives in the city. She distinctly stated, however, that she was quite pleased with the food and attention she was receiving, though she grumbled a little at being asked to do house-work.

In short, all the members of the deputation were very favourably impressed with the state in which the patients were found, and also with the kindly care, in some instances even affection, shown to them by their guardians.

We examined with especial attention house No. 2; and have no hesitation in saying that, with respect to cleanliness and general comfort, there was no ground for finding fault—all was satisfactory. On informing the guardian that her house was reported to have been in a discreditable state at the time of Mr Wickham's visit, she at once admitted that it had been more confused and dusty than usual, but explained that that was caused by the getting in several bags of potatoes about an hour previously, and also by the fact that they had been busy papering the bedroom in which the lunatics sleep. Only one of the insane is ours; the other one belongs to another parish, and is not so suitable for management in a private house as many. It is to the latter that Mr Wickham particularly refers. Regarding the scratches on the neck he speaks of, both the patient and the guardian gave the same explanation independently of each other—viz., that they were caused by going through a hedge at the back of the house; and this origin was surely innocent enough. She, like our own patient, was quite clean and orderly at our late visit. No doubt it is said by Mr Wickham that she had dirty ears when he saw her. That certainly was an offence against cleanliness; but it has evidently been only an exceptional condition; and, after all, it is by no means so uncommon amongst the working classes of the country, as to call for so great an amount of virtuous indignation. And here I would ask, would every inmate in each of our asylums bear so rigid an examination without something being found capable of improvement either in person or dress? I trow not. It appears, from the official report of the Board of Lunacy for last year, that even in the well-managed asylum to which Mr Wickham himself is attached, perfection in these respects has not yet been reached. Thus, at page 176, in the Visiting Commissioner's Report on that institution, it is said, "Fair attention is given to personal cleanliness, *but more might fitly be given to the state of the heads.*" (The italics are mine.)

No fault is found with house No. 3, or its three inmates, except that Mr Wickham *supposes* that one of them is made the sport of children; for he does not say positively that he had ascertained that it was really the case. Now, we have only one house there in which three female patients are lodged. Careful inquiry was made both at them and their guardian, if the above statement was applicable to any of them, and they all said that there was not the least foundation for it. Never have I, nor any one connected with this institution, seen the least evidence of such treatment of an insane person in the course of our numerous visits; and when the charge was mentioned to the Inspector of Poor, he looked quite surprised, and said that he was unaware of its occurrence.

So much, then, for these statements. The perusal of Mr Wickham's paper has impressed me with the difficulty a medical superintendent or other official of an asylum has in forming an unbiassed opinion of this scheme. Accustomed to a palatial-like building, with its capacious halls and dormitories—everything, in fact, on a large scale—it is not easy to descend to the level of a humble, whitewashed dwelling, with its unpretending furnishing and surroundings, and to form a just estimate of its greater suitability for a certain class of patients, or to appreciate the attraction which its homely character has for the indigent insane. When first entering on the scheme, about seven years since, I myself found a difficulty in overcoming my prejudices in favour of an asylum. Increasing experience has, however, convinced me more and more of its special advantages. And I am satisfied that in its general adoption, both here and in England, is to be found the true solution of the question which is every now and again forcing itself on public notice, "What is to be done with our pauper lunatics?" But we must not entertain unreasonable expectations. Imperfections will manifest themselves here and there, just as in everything else mundane. Asylums themselves, in some cases of late, have not been in too high public repute for the kindliness of their management. So, even though the scratch on the neck, so much insisted on by Mr Wickham, had been really inflicted by the guardian—a supposition which the evidence contradicts—we have unfortunately too true tales of broken ribs in southern asylums, and catalogues of injuries more or less serious, recorded in each annual report of the Scottish Lunacy Board as sustained in northern institutions, to set against it; showing that immunity from injury, whether self-inflicted or produced by others, is not secured by residence in asylums. In this statement, however, I by no means wish to reflect on these establishments; on the contrary, considering their nature, it is surprising that injuries, accidental and otherwise, are not more numerous than they are.

ALEX. ROBERTSON, M.D.

TOWN'S HOSPITAL AND ASYLUM,
GLASGOW, *13th August* 1870.

P.S.—Since sending the foregoing communication to the Editor, I have received a letter, of date 17th August, from Mr Brown, the Inspector of Poor for Balfron, in which he states that he accompanied the deputation of which Mr Wickham was a member during all their visitations in his district; and enters fully into details regarding each house. I append some extracts in reference especially to the houses in which our patients are lodged.

Speaking of No. 2, so much objected to by Mr Wickham, he says that *when he visited with this gentleman*, which was in March last, "the bedding was sufficiently clean, and in good order, and likewise the patients' bedroom was clean and comfortable." After stating that the room adjoining was confused and dusty by the potatoes lying on the floor, he adds, speaking of the house as a whole, "I really could not say that it was dirty; it had a cleanly, comfortable appearance, and the floors had evidently been washed shortly before." Speaking of the scratch on the neck of one of the patients, he gives the same explanation as I have stated—that it was caused by the hedge. In reference to what was said in the house about it, in his opinion there was not the slightest ground for the conclusion at which Mr Wickham appears to have arrived,—that it was inflicted by the guardian.

"In the fourth house we visited there was a male patient belonging to the parish of Larbert, who was transferred from Stirling District Asylum to Balfron in July 1869, and who has improved greatly in strength since his arrival here. With this patient, the guardian, and the house, the deputation were exceedingly well pleased; in fact, so much so, that Dr Wickham took the guardian's address, and promised to send another male patient from Edinburgh; this, of course, he failed to do." It is to be regretted that Mr Wickham has not carried out his laudable intention.

Regarding the woman Mr Wickham supposes to be made the sport of children, he says, "Dr Wickham is quite astray in supposing that this woman is liable to be exposed to the tricks of the boys and girls here, as no such thing occurs in this or in the case of any lunatic residing here. I have abundant opportunities of knowing about this person, as she resides in the adjoining property to where I live, and I am in the habit of seeing her daily."

Mr Brown concludes his letter with the following observations:—"The only time I find any of the lunatics excited, is when visited by the Commissioners in Lunacy, or other strangers, whom they suspect of wishing to remove them back to confinement; of this many of them have a particular dread. In conclusion, I have to state that, as far as my observation goes, I find that lunatics and children sent to the country from asylums, or from the city parishes, generally improve in health and strength, which shows that the boarding-out system is a step in the right direction."

Dr Brown, the Medical Officer of Balfron parish, has also favoured me with his observations on Mr Wickham's strictures, in a letter dated the 20th instant. It may suffice to say, that on every point he corroborates, and even in stronger terms, the statements of the Inspector. A. R.

22*d August* 1870.

OBITUARY.

DR JOHN ADAMSON.—IN MEMORIAM.

ST ANDREWS, 17*th August* 1870.

TO-DAY the grave closed over one of the most valued, perhaps the most valuable, of our citizens. For five-and-thirty years Dr Adamson has administered to the bodily sufferings and frailties of our townsmen, with a skill and care and spirit of commiseration rarely excelled in the medical profession. His was no mere mercenary attention to the art of Medicine, but a genuine love for the science, an anxiety for his patients, and a liberality of time and attention which did honour alike to his heart and his head. Educated partly at St Andrews, but chiefly in Edinburgh, where he took license in 1833, he spent some time in the medical schools of Paris, and as surgeon in a voyage to the Chinese seas, and then settled down in the autumn of 1835 in what may be called his native city (for he was born at the farm of Burnside, in the immediate neighbourhood). At that time our old city had Dr Mudie, Dr Thomson, Dr Briggs (the Professor of Medicine and Chemistry), Dr Bruce, and, latterly, Dr W. Fleming, for its medical advisers; and with such an array of experienced hands, it was a bold step on the part of Dr Adamson, and not to be wondered at that for several years he had the fag-end of the practice, and truly may be said to have worked gratuitously for the public. Nothing daunted, however, and giving his services freely and cheerfully where they were needed in the city and neighbourhood, he occupied his too abundant leisure in preparing natural history specimens for the College Museum, of which he has all along been Curator, and which, indeed, owes its existence very much to his gratuitous services. About this time also (1837–40) he taught Chemistry and Natural Science to the advanced pupils of the Madras College, convinced of the importance of science in school education; but, like many others, he was before his time, and the boon which he freely offered did not by any means meet with commensurate reception. Taking an active part in the Literary and Philosophical Society, at which the first specimens of Talbot-type or Calotype were exhibited by Sir David Brewster in 1838, he took keenly to the practice of the new art, and, along with the late Sir Hugh Playfair and his younger brother Robert (who subsequently joined D. O. Hill of Edinburgh), may be said to have been one of the founders of Photography in Scotland. The early death of his brother, who had risen into fame through his photographic portraits of the leaders of the Church Disruption in 1843, had almost decided Dr Adamson's profession as a photographer; but the deaths of Drs Briggs, Mudie, and Bruce, and the removal of Dr Thomson to Australia, opened a wider field of medical practice, and he resolved to stay in St Andrews. His long unrequited labour now began to meet with its reward, and his practice rose, in a few years, to be the most extensive in the east of Fife, though often afterwards he was heard to say that if he had sought for wealth he should have taken his brother's place with D. O. Hill in 1844. Working steadily at his extending practice, he found leisure to direct his attention to sanitary matters, and was among the first to trace the intimate connexion between cholera, fever, and the like, with the undrained districts of towns—a subject which still engaged his attention within a few days of his death. Some years later (1849–52) he conducted the chemical class of the late Professor Connel, and, had his extensive practice permitted him to have continued his assistantship, he would have ultimately succeeded to the Chair. During the last twenty years he took a lively interest in all local improvements, as a private citizen, as a councillor, and as a railway director; and, though frequently differing from the majority, his views were always conscientiously held and discreetly maintained. Indeed, his heart often led him to advocate views on temperance, pauperism, and the like, where his severer judgment would, in all likelihood, have dissented. About fifteen years ago he had a shock of partial paralysis (brought on, we believe, by over-anxiety about his patients during the occurrence of a local epidemic), and though to all appearance quite recovered, there can be no doubt his constitution never completely rallied from the attack. It was at this time he was joined by his friend and relative, Dr O. H. Bell, Professor of Medicine, who relieved him of much of the pressure and fatigue of his increasing practice. Three weeks ago he retired with his family to Grantown, Strathspey, for a month's relaxation, and it was while there that he was seized with the disease (erysipelas of the head and face) which has removed him from his wide sphere of usefulness at the comparatively early age of sixty. Dr Adamson married, somewhat late in life, the eldest daughter of the late Professor Alexander, who survives to lament his loss, with a family of one daughter and three sons—the latter still in their early boyhood. In surveying the career of our lamented friend as a citizen (hereditarily and by property connected with the city), he took a lively interest, sanitary and commercial, in its prosperity; as a companion he was frank and affable, though occasionally severe to the intemperate and dissipated; and as a medical practitioner he was careful, cautious, and, for his own comfort, too sensitive and anxious about the recovery of his patients. Though leaving no work of importance behind him, he was the author of several papers on Sanitary Reform in the medical journals, of the number on Photography in "Chambers's Information for the People," and of pamphlets on the Health and Drainage of St Andrews, and on the Evils of the Licensing System as at present practised by the local magistrates. In all of these there is fair talent and much earnestness, and many who opposed him on the public-house system of the city were ever ready to admit that if his judgment was wrong his heart was right, at least, in striving to lessen the crime, and pauperism, and suffering that flow so directly from intemperance. He has gone to his rest beneath the shadow of St Rule: peace and a sacred repose to his ashes, and a grateful memory of the deeds of mercy and benevolence he accomplished whilst amongst us.

DEATH OF ALBRECHT VON GRAEFE.—At three o'clock on the morning of the 20th of July, Von Graefe, the greatest of modern ophthalmologists, died of consumption, after a long illness, in his forty-third year. There is probably no country in the world unprovided with his pupils, and certainly none in which some one cannot be found who owes his freedom from suffering, if not his sight, to the brilliant discovery of Von Graefe. His fame mainly rests upon his discovery of a cure for glaucoma in iridectomy, and the first operation of this kind was performed in June 1856. But his discoveries were not limited to one operation or to one disease, and the whole science of ophthalmology, both medical and surgical, has been enriched and adorned by the labours of Von Graefe, whose long and serious illness never blunted his acuteness or diminished his restless energy.

PUBLICATIONS RECEIVED.

George Armatage,—Veterinarian's Pocket Remembrancer. London, 1870.
Fordyce Barker, M.D.,—Observations on the Malignant Diseases of the Uterus. New York, 1870.
Fordyce Barker, M.D.,—The Treatment of Croup. New York, 1870.
W. and J. Braithwaite, M.D.,—The Retrospect of Medicine. London, 1870.
James O. Coles,—Deformities of the Mouth. London, 1870.
Prof. G. B. Crivelli e L. Maggi,—Sulla Riproduzione della Amibe. Milan, 1870.
Narayan Daji,—Ailantus Excelsa, a new Indian remedy. Bombay, 1870.
Frederick Davies, M.D.,—The Unity of Medicine. London, 1870.
Horace Dobell, M.D.,—Diet and Regimen. London, 1870.
Fourth Annual Report of the New York Metropolitan Board of Health. New York, 1870.
Tilbury Fox, M.D.,—Prurigo and Pediculosis. London, 1870.
Robert Harvey, M.D.,—The late Epidemic of Smallpox in Bhurtpoor. Calcutta, 1870.
Thomas Inman, M.D.,—The Preservation of Health. London, 1870.
Justina's Letters in reply to Miss Garrett's Defence. London, 1870.
G. Johnson, M.D.,—Lectures on Cholera. London, 1870.
William Mac Cormac, M.D.,—On Amputation through the Knee-Joint. Dublin, 1870.
W. D. Stone, M.D.,—Half-Yearly Abstract of the Medical Sciences.—Vol. LI. London, 1870.
J. Batty Tuke, M.D.,—Pathological Classification of Mental Disease.
Spencer Watson, F.R.C.S.E.,—On Abscess and Tumours of the Orbit. London, 1870.
J. Soelberg Wells,—A Treatise on the Diseases of the Eye. London, 1870.
J. Burney Yeo, M.B.,—Notes of a Season at St Moritz. London, 1870.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*On the Disappearance of Uterine Adhesions.* By J. Matthews Duncan, M.D., Honorary Member of the Obstetrical Society of Louisville, Kentucky.

There are few recent observations in gynækology which appear to me to have more scientific and practical interest than those on the presence and influence of, and those on the removal and disappearance of, adhesions of the uterus and of neighbouring organs and parts.

These observations constitute an important part of our knowledge of perimetritis and parametritis; explaining the production of many hard pelvic masses, simulating tumour or abscess.

A very important department of this subject is the removal or disappearance of adhesions, a point to which very little attention has been paid.

This destruction or removal of adhesions could scarcely be the subject of investigation till recently, because their frequent presence and influence have not till recently been fully recognised. Madame Boivin, who paid more attention to the subject than any other author whom I know, entertained views regarding them which cannot now be regarded otherwise than as both deficient and erroneous. She seemed scarcely to believe in their removal, certainly not at all in their destruction in the course of advancing pregnancy, and by the physical conditions thus developed. Her hopes of the removal of adhesions were based chiefly if not entirely on the medicinal virtues of mercury and of iodine.

It is not necessary now to show the erroneousness of these views, for I believe that no well-informed physician entertains them; and there are probably none who would, with Madame Boivin, regard bluishness of the sclerotic and long eyelashes as signs of special liability to uterine inflammation!

Uterine adhesions may be removed by two processes, of which I can only give the mere mechanical part. First, by continual come-and-go motion, a sort of friction which wears them away. A healthy uterus moves upwards and downwards to a considerable extent, say from one-fourth to half an inch, with every respiration. If even a part of this motion goes on in an adherent uterus, it will gradually work itself free from its unnatural bonds. Second, by the continued stretching produced by the growth of the uterus in pregnancy, alone or combined with the upward and downward movement just described. This kind of destruction is observed also in the progress of some ovarian and other tumours.

Both of these processes I have illustrated in my "Practical Treatise on Perimetritis and Parametritis," and it is my present object to describe a remarkable case in which the second mode of destruction of adhesions was exemplified.

Before doing so I shall quote from Madame Boivin's book, which was a very praiseworthy work in its day, those propositions of hers which my case and others conclusively show to be incorrect. Madame Boivin's statements should, in my opinion, be regarded as only partially or occasionally true, not as pathological laws.

The case which I am to record is especially important, because the uterus became pregnant and advanced far in the development of pregnancy, when it was not merely adherent to the neighbouring organs and parts, but absolutely fixed and immovable; the cervix also being surrounded by dense induration, a further indication of extent and closeness of adhesion. As there was here no respiratory movement to wear away the adhesions, or even to commence their destruction, it was reserved for the influence of pregnancy to effect this desirable object.

"Abortion," says Boivin,[1] "is very often the result of an organic lesion of the appendages of the uterus.

"Exploration of the genital organs should be practised with the greatest care, and in such a manner as to make sure, by trying to displace the uterus with the finger, whether it enjoys the mobility peculiar to it, or if it is retained in a state of fixity more or less distinct; in this last case, if conception is effected, abortion takes place.

"Adhesions of the peritoneal surfaces of the organs in contact with the uterine appendages, with the uterus itself, or with one of the points of the pelvic cavity, become an obstacle to the ascensionary development of these parts. They rarely clear the upper margins of the pelvis.

"Nevertheless, when there is affected only a tube, or only an ovary of the same side, the uterus charged with the product of conception may be developed up to a certain degree, and sometimes even up to the completion of pregnancy.

"But when strong adhesions, whatever may be their nature, on the part of the broad ligaments, of the tubes, or of the ovaries, retain the organ in a fixed situation, the uterus cannot be developed, and abortion necessarily takes place.

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[1] Recherches sur une des Causes les plus fréquentes et la moins connue de l'Avortement, p. 170.

"In this state of the uterus, not only does abortion take place, but it is ordinarily accompanied by very grave accidents: such as hæmorrhage, metritis, peritonitis, ulceration, sometimes gangrene of the affected parts, and death.

"At other times the ulceration has succeeded to the abortion; it is not till after the purulent collection has found vent by the vagina, by the anus, or by a point of the abdominal wall, that the patient has been saved from the imminent danger with which she was menaced if the abscess opened into the cavity of the peritoneum."

The following are the chief particulars of the case to which I have referred:—

Mrs N., æt. 36, mother of a large family of living children, had her last living child at the full time in 1861. In 1862 an eighth-month child, still-born; in 1863 a child about the fifth month; in 1864 a miscarriage about the third month; in January 1865 a child at sixth month; in 1866 a miscarriage at third month. It was after the miscarriage of 1865 that Mrs N. had the very severe and dangerous attack of perimetritis, which ended in a large perimetric abscess, and left the uterus fixed. The uterus was rendered immovable and drawn closely to the sacro-iliac synchondrosis of the left side. On this side of the cervix there was dense hardness felt on pressing through the upper part of the vagina, and the hardness was only less in degree behind and to the right side of the organ. This state of matters, not materially changed, was found during and after the miscarriage which occurred in 1866. In the second month of the pregnancy of 1870, now to be described, the same conditions were found, and in addition the bulky uterus of the second month could be felt. There was great uneasiness, pain in the back and loins, and feeling of illness. Sickness was not unusually severe. I made careful examinations with some regularity every fortnight during pregnancy.

As the uterus developed itself it became retroverted. It gradually filled the pelvis, bulging down till its fundus appeared to press on the coccyx and almost on the perineum. The cervix ascended. At last the finger, jammed between the retroverted uterus and the symphysis pubis, could only with great difficulty be forced as far as the posterior lip of the os uteri. There was neither obstinate constipation nor retention of urine. At this time the absolute immobility of the uterus, and the hopelessness of any attempt at replacement, caused me great anxiety. About the end of the fourth month and the beginning of the fifth, this retroverted and adherent uterus became gradually spontaneously replaced. During this time there was great local and general suffering of an indefinite character, and the patient for a few days kept her bed. When the uterus had ascended, physical examination discovered nothing abnormal, except unnatural approximation of the cervix to the symphysis pubis. But it is almost certain that the adhesions were not completely removed. The fœtal heart was heard up till about the middle of the sixth month of pregnancy, and at this time the uterus was unusually large. Then the child died. Mrs N. had never perceived fœtal movements as she had been accustomed to do. The uterus now became smaller and smaller in bulk, the liquor amnii being absorbed. Fully a month after the death of the fœtus the membranes burst, and a small quantity of dirty liquor amnii was discharged. Some hours thereafter active labour-pains commenced. The child presented the shoulder. Turning was very difficult. The placenta was easily removed by traction on the cord. No flooding.

Careful examination of the uterus at this time revealed an unnatural condition of the organ, which it is difficult to describe. The os uteri was widely open, unnaturally adjacent to the symphysis, and its mobility was restricted. These conditions could be accounted for only by supposing that some adhesions persisted around the lower segment of the uterus.

During the convalescence, which was uninterrupted, the uterus was unusually slow in passing through the process of involution, and still remains bulky. But it is now, two months after delivery, situated near the middle of the pelvis, is not absolutely fixed, moves slightly in synchronism with respiration; and around the cervix there is nowhere to be felt the dense induration which existed previous to and at the commencement of last pregnancy.

This very remarkable case is well worthy of study from several points of view. I have drawn special attention to it as a case of pregnancy in which the uterus, bound down by adhesions, overcame all difficulties and became developed as far as the seventh month; the pregnancy destroying the adhesions nearly completely, and the uterus, after its termination, being found in a freer and more natural state than previous to the last conception. But the case is also very noteworthy, as one in which adhesions caused retroversion of the gravid uterus, and still more as one in which the adherent retroverted organ became spontaneously replaced, ascending into the abdomen without any artificial aid.

ARTICLE II.—*Legislation for Inebriates.* By W. LAUDER LINDSAY, M.D., F.R.S.E., Physician to the Murray Royal Institution (for the Insane), Perth.

(*Second Paper.*[1])

I HAVE long been strongly of opinion—and have frequently expressed the opinion—that (1) *Habitual Drunkards*—duly certified as such by physicians under formalities similar to those now applied by law to the *Insane*—should be deprived of their personal liberty and of the management of their affairs, just as the Insane now are; (2) such Drunkards should be committed to, and detained in, *special*

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[1] The *first* paper appeared in the *September* Number of this Journal, p. 230.

Institutions, just as the Insane are in Lunatic Asylums; and (3) there should be *legal power of detention* till the physicians in charge of the said special Institutions are of opinion that sufficient self-control has been regained to enable patients to resume their former positions in their families and in society. The following commentary on the two Bills (referred to in my former paper), recently presented to the Parliaments of Lower Canada and Britain respectively, will give me an opportunity of recapitulating on the one hand, and of more fully explaining on the other, the views I hold as to the *kind and degree of legislation* that are necessary in England and Scotland for the proper protection of society, and of the victims themselves, with their families, from the major consequences of Habitual Drunkenness. I do not propose occupying space by discussing the *propriety* of legally depriving the Habitual Drunkard of his liberty, and of subjecting him to legal disabilities resembling those of the Insane. I assume that the necessity for *some* such procedure has been sufficiently discussed, and is fully admitted, by the most competent *medical* authorities in all civilized countries; and that what remains to be determined is simply the kind and degree of legislation practicable in the existing state of public feeling regarding the so-called "liberty of the subject" in this country. I have myself in various forms, and many years ago, sketched the features wherein the Habitual Drunkard resembles the Lunatic; have pointed out his non-suitability for treatment in ordinary Lunatic Asylums;[1] have recommended the institution of stringent repressive laws; and have urged the establishment of special Inebriate Institutions, on the model—so far—of those of America.

In commenting on the main features of the "Habitual Drunkards" Bills of 1870—which form the chief subject of the present criticism—it will be convenient roughly to classify my remarks under the following heads:—

I. *Use, and Definition, of the term "Habitual Drunkard."*—Most wisely and fortunately, in neither Bill is the word "*Dipsomania*" used. There can be no doubt that the employment of this unfortunate term[2] by medical men, in former discussions on the reform necessary in the treatment of Habitual Drunkards, has been a barrier to progress.[3] Physicians have been accused by lawyers of considering Habitual Drunkenness too much as a form of mental *disease;* while the former retaliate upon the latter by asserting that the law is too prone to regard all intemperance in the use of alcoholic liquors merely as a *vice!*[1] Unquestionably, it is most difficult, in many cases, to *distinguish intemperance the disease from intemperance the vice.* Intemperance is frequently assigned as an element in the causation of Insanity. But my experience in the treatment of the insane leads me to regard it in such cases as usually one of the *results* of the Insanity[2]—though it generally also acts as a cause of aggravation of the mental disturbance—frequently quite changing its character. But for practical purposes—for the proper legal treatment of the Habitual Drunkard—all hair-splitting between "Dipsomania" and "Intemperance" is quite *un*necessary; and it is certainly most desirable to use an intelligible practical term, which equally applies to the patient, whether or not his Drunkenness may be regarded as a *disease or a vice!* It is well, therefore, forthwith to discard from common use a term which is only one of many in the science known as "*Medical Psychology*," that have been productive of much mischief from their abuse, if not from their legitimate use.[3] It is obvious, however, that both in the Canadian and English Bills, Habitual Drunkenness is regarded *practically*, if not also scientifically or nosologically, as *a form of Insanity.*[4] Unquestionably, there is a *practical* advantage in so considering it, inasmuch as the weightiest opinion, not only of medical but of legal[5] authorities, is in favour of placing it *legally on the same footing with Insanity.*

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[1] Thus, I pointed out how Dipsomaniacs—so-called—usually become the "*bêtes noires*" of our Asylums, in the 38th Annual Report of the Murray Royal Institution, 1865, p. 16.

[2] *Vide* 31st Report of the Murray Royal Institution, 1858, p. 28.

[3] The main arguments of the opponents in Parliament of Mr Dalrymple's efforts to pass a Bill for the proper treatment of Habitual Drunkards have been (1) the impossibility of defining Habitual Drunkenness; and (2) the risk of abuse of the power of detention.

In neither Bill is a *scientific* definition of "*Habitual Drunkenness*" attempted: nor would it have been wise to attempt what would certainly have resulted in failure. It must be for the judge in every case to decide, on such evidence as he may consider satisfactory, whether a person's habitual drunkenness is such as to require "sequestration" of his person in an inebriate retreat, and the deprivation of the management of his affairs; for just as is the case in insanity, drunkenness may not, even if habitual, be such as to render this extreme procedure necessary. By the existing Scotch Laws of Lunacy, the "Petition to the Sheriff to grant order for the reception of a patient into an asylum" contains evidence not only that the said patient "is at present in a state of mental derangement," but that he is also "a proper person for treatment *in an asylum for the Insane*." In point of fact, *many* insane persons in Scotland are never in asylums, but remain either in their own homes, or are "boarded out" in private dwellings; and the tendency of the age is to largely increase the numbers so "boarded out." Clause 1 of the Canadian Bill gives a very practical definition of the kind and amount of drunkenness that the law is to regard as justifying deprivation of civil rights, when it describes, as among the results of such intemperance, the squandering or mismanagement of property; negligence of, or injustice to, his family; and danger to life or society. There may be a doubt whether "the common report of the neighbourhood" (clause 12), is a safe criterion of that habituality in drunkenness, which renders its victim liable to legal "interdiction?" But "common report" has been the means of calling the attention of Commissioners in Lunacy, both in England and Scotland, to cases of gross mis-treatment or mal-treatment of lunatics in private dwellings; while it is obvious that all that "common report" could do in the case of the Canadian inebriate, would be to bring his case before the local judge. The whole spirit of the Canadian Bill shows that such a "report" *alone* would not influence the judge in deciding for or against interdiction. It is quite conceivable that "common report" might be useful in exceptional cases—where, for instance, the relatives or friends on the one hand, or the public prosecutor on the other, decline or omit to take the necessary steps for an inebriate's interdiction.[1] Clause 1 of the English Bill defines habitual drunkenness as involving loss of self-control and incapability of proper attention to an inebriate's family and affairs—*or* dangerousness to himself or others. But it adds the designation of unsoundness of mind to the opprobrium of habitual drunkenness. *Nosologically*, the Bill is in this respect right; but it is, I fear, wrong in unnecessarily introducing an opinion, and a phrase, which will constitute a stumbling-block not only to lawyers, but to the general public and the fourth estate! The definition of that habitual drunkenness which justifies "commitment" according to the laws of the State of New York, so closely resembles that contained in the English Bill as to suggest the probability that the latter definition was copied from the former. Legal procedure in that State requires the filing of affidavits by "two respectable practising physicians, and two respectable citizens, freeholders of the county, to the effect that an inebriate is lost to self-control, and is unable from such inebriety to attend to business—*or* is thereby dangerous to remain at large." It is noteworthy here, that the Lunacy Commissioners of both England and Scotland have hitherto regarded habitual drunkenness as *not amounting to insanity*, and not certifiable as such: while they have always timidly shrunk from the expression of any opinion that *practically* such intemperance should be legally dealt with as insanity. Their official timidity has undoubtedly proved a serious obstacle to proper legislation, and has contributed materially towards placing Britain in a ridiculous and backward position, compared with some of her own colonies, as regards its conception of the duties incumbent upon society towards inebriates, and the consequent legal action.

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[1] This is illustrated by the fact that the question—"What measures may be adopted with a view to the repression of Habitual Drunkenness?"—is to be discussed at the forthcoming meeting at Newcastle of the National Association for the Promotion of Social Science, under the Section relating to "Repression of *Crime* (!)" [C, of Class I, Jurisprudence and Amendment of the Law].

[2] *Vide* "The Causes of Insanity in Arctic Countries," Brit. and For. Medico-Chirurg. Review, January 1870, p. 223.

[3] Other illustrations occur in the terms "General Paralysis," "Hysteromania," and "Typho-mania." (*Vide* Paper on "Typho-mania" in Edinburgh Medical Journal, Oct. 1868, p. 331; and 31st Report of the Murray Royal Institution, 1858, p. 12; and 32d, 1869, p. 16.)

[4] Nevertheless, the English Bill (clause 17) does not absolve Drunkards from responsibility for "criminal acts done by them while under the influence of Drink." In the Binghampton Asylum (State of New York), Inebriates are *not* considered Insane, though practically they are, in various respects, subjected to the same restrictions as the Insane. Dr Gray, editor-in-chief of the "American Journal of Insanity," and Physician-in-chief of the New York State Asylum at Utica, also protests *against* the Insanity theory (Utica Asylum Report, 18th (1861), p. 22).

[5] *Vide* the evidence of Sir Archibald Alison and other Scotch Sheriffs, in the "Report by H.M.'s Commissioners appointed to inquire into the State of Lunatic Asylums in Scotland," 1857, vol. ii. p. 379.

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[1] This term is a most convenient, general, or comprehensive one, which includes or implies *sequestration* in a special institution (that is, deprivation of *personal* liberty), and *curatorial* management of his affairs.

II. *Special Institutions for Inebriates.*—Both Bills contemplate, and most properly, the establishment of special houses for the reformation of the Inebriate. A general opinion that such retreats are desirable has arisen in consequence of the conviction, on the one hand, that Inebriates are not suitable patients for lunatic asylums—the discipline or routine of which they disturb, by reason partly of their sanity, partly of their moral insanity; and, on the other, that such asylums are improper receptacles for mere drunkards, who do not require their special appliances and restrictions. The proposed designations[1] of special Institutions for Inebriates have varied with varying conceptions of the main characters they should assume; thus, they are, or have been, called "Reformatories," "Sanatoria,"[2] "Refuges," "Retreats,"[3] or "Asylums" for "Inebriates,"[4] Habitual Drunkards," or "Drunkards;" or "Temperance Homes;"[5] or, in the case of those for the higher classes, they maintain the names of ordinary private houses.[6] Among the peculiarities of such *Retreats* (let us use some short, general, unobjectionable term) are their (*a*) Domestic, (*b*) Industrial, (*c*) Reformatory, and (*d*) Punitive, character. The main object of treatment in the case of the Inebriate, is in the first place, *Restriction*—to prevent access to alcoholic liquors; and, in the next,

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[1] So far as concerns at least Non-pauper Inebriates, it is desirable to avoid any specialty or peculiarity of nomenclature, especially seeing that the terms at present commonly applied are scientifically *in*correct or *in*appropriate. Thus the word "Asylum" represents—as it does in the case of similar special Institutions for the Insane, Blind, Deaf and Dumb, or Idiotic—only *one* of its objects; while the term "Reformatory" cannot fail to be associated with ideas of vice or crime—of "City Arabs," or other waifs and strays among the lowest or poorest orders of society.

[2] The "Sanatorium" at Media, near Philadelphia, U. S., opened in 1867.

[3] "Belmont Inebriate Retreat," near Quebec.

[4] *E.g.*, "The New York *State* Inebriate Asylum" at Binghampton, and "the New York *City* Inebriate Asylum."

[5] The "Washingtonian Home," near Boston, Massachusetts.

[6] "Queensberry Lodge," Edinburgh; or "Corbar Hill House," Buxton, Derbyshire.

Reform—to bring back or to cultivate the power of self-control to such an extent as to destroy the disposition to self-abuse by intoxicants. It is quite compatible with these objects, that Inebriate Retreats should possess all the characters of comfortable private dwellings, furnished according to the class of boarders, situated preferentially in the country, with all the advantages, and none of the special appliances or restrictions, of private asylums for the Insane. There is no reason, moreover, why the Inebriate, after he gets over the immediate effects of his last debauch, should not *work* for, or towards, his own support or that of his family; and provision for such a purpose should form part of the scheme of construction or constitution of every establishment for Inebriates. It is obvious that, in the majority of cases, the patients cannot follow their usual avocations in an Inebriate Asylum; but they can be trained to some industrial pursuit, which may become remunerative to a certain extent, both as regards health and money. Every county or district asylum in England and Scotland shows to what extent the insane can be engaged in work that is beneficial in a double sense;[1] and if this can be done in the case of the chronic *Insane*, it can surely be done to a much larger extent in that of mere Inebriates. An important difference, however, may be recognised in this respect, that, while the Insane get no immediate *pecuniary* benefit from their labour, such a benefit would be desirable, if not necessary, in the case of Inebriates, were it only as a stimulus or inducement to work at all.[2] The English Bill makes provision for treatment in *special departments of poorhouses or prisons*, just as is the case with lunatics; in which case the discipline is to be partly reformatory, partly punitive. In all cases, whether the accommodation provided consist of separate institutions, or merely of special wards of existing establishments, the English Bill contemplates their being licensed, and subject to inspection, by the Commissioners in Lunacy. And in both Scotland and England, it is but fitting that Inebriates and Inebriate Retreats should be placed under charge of the *Lunacy* authorities.

III. *Character of the Discipline or Treatment.*

(A.) *Commitment and Compulsory Detention.*—The English Bill "commits" an Inebriate on two medical certificates, similar in their character to those required in Lunacy cases. The principle is sound, and the practice is merely a parallel to what has long existed in both England and Scotland in the case of the Insane. But, just as is the case in the Insane, I doubt the necessity for *two* medical certificates, or, in Scotland, for appealing to the *Sheriff;* while Lunacy certificates have always appeared to me unnecessarily minute or prolix.[1] In the Canadian Bill, though a person is interdicted, he may not be placed in an Inebriate Retreat (clause 17). It is perhaps desirable, however, that for *may* should be substituted *must;* and that his curator should be compelled to place him in some such Institution, just as in Scotland an Inspector of Poor *must* place a pauper lunatic in the District Asylum, *unless he has an official exemption* from the Board of Lunacy. In the English Bill, there is provision (clause 15) for punitive commitment without certificate. A similar procedure occurs under the Swedish law. Both Bills provide for compulsory detention in the case of persons voluntarily submitting themselves to treatment, and a similar power exists in Belgium. In the well-known Inebriate Asylum of Binghampton, only a very small proportion of the inmates are "committed"—under clause 4 of an Act of the New York Legislature passed in March 1865.[2] Thus, in the year 1867, there were *no* committed patients; and Dr Day, the Physician-Superintendent of the said Asylum, protests against the admission of "the forced commitments of a court, or the common seizures of the police," whom he would place in *special* "*Reformatories,*" quite distinct from Inebriate Homes conducted on the voluntary principle.

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[1] *Vide* 34th Report of the Murray Royal Institution, 1861, p. 50; 32d (for 1859), p. 40; 30th (for 1857), p. 26; and Index to Medical Reports for Decennium from 1854 to 1864, p. 4.

[2] The law establishing the "New York State Inebriate Asylum" at Binghampton, enacts that all its poor and destitute inmates "*shall* be employed in some useful occupation;" and that they "*shall have* all moneys accruing from their labour"—deducting the expense of their own maintenance; said surplus moneys to be given to their families, or, if unmarried, to be paid to the patients on discharge.

(B.) *Voluntary Boarders.*—The English Bill makes provision for the admission of Voluntary Boarders; and some years ago the Scottish Board of Lunacy introduced a clause into our local statutes, one object of which appears to have been to give facilities to so-called "Dipsomaniacs" to place themselves under treatment in *Lunatic Asylums.*[3] It is quite proper that every facility should be offered for *voluntary* submission to treatment in Inebriate Asylums. But "voluntary" patients should be placed on the same footing as "committed" cases, as regards *detention,* the duration of which should always depend on the opinion of the physicians in charge of Inebriate asylums. By the Scotch law, Voluntary Boarders in Lunatic asylums can leave on three days' notice—a privilege which, in nine cases out of ten, renders anything like salutary discipline impossible.[4] The moment any restriction becomes unpalatable or irksome, the patient can defy authority; and by doing so, he not only renders benefit in his own case impossible, but sets the worst example to his fellow-patients. Practically I have found the permissive clause in the Scotch statute a failure and an absurdity; so much so, that I am compelled to refuse admission to "Voluntary Boarders" into the Murray Royal Institution, unless in very rare exceptional cases. In not a single instance have I found the issue of the experiment of receiving such cases thoroughly satisfactory; in only one case tolerably so; while in all others it was decidedly *un*satisfactory!

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[1] *Vide* "Suggestions for the Proper Supervision of the Insane and of Lunatic Asylums in the British Colonies," Brit. and For. Medico-Chirurg. Review, Oct. 1869, p. 490.

[2] *Vide* Journal of Mental Science, 1870, p. 260.

[3] Section xv. of Act 29 and 30 Vict., cap. 51, 1866. (*Vide* 9th Report of the Scottish Lunacy Board, 1867, p. lxv.; and 10th Report, 1868, p. lxiv.)

[4] *Vide* 39th Report of the Murray Royal Institution, 1865–8, p. 9; and 38th, 1865, p. 15.

In Queensberry Lodge, Edinburgh, which, so far as I am aware, is the only *Public* Institution in this country for the treatment of Inebriates, all the inmates are voluntary, in so far as both themselves and their relatives or guardians sign agreements purporting that they consent to conform to the discipline or regulations of the establishment. But such agreements have scarcely even a *moral* force: *legal* validity they have none. The patients are encouraged to believe that the authorities of the Institution *have* a legal power of detention; but, in point of fact, it is at present quite as illegal to detain in Queensberry Lodge a Voluntary Boarder, who insists on removal, as it would be in the case of a similar resident in a Lunatic Asylum. In the Binghampton Institution, the patients are almost exclusively Voluntary, representing partly the poor, but much more fully the affluent. Each inmate pledges himself in writing to obey the printed rules;[1] and infringement of the said rules leads to expulsion! "The fundamental basis," says Dr Day, "upon which *all* hopeful treatment *must* rest, lies in the desire of *the patient himself* to escape from the slavery that enthrals him;" and he describes his patients as "co-operating *ardently* with the superintendent for their recovery!" It would assuredly be Utopian to make such an opinion or such experience a basis for the treatment of the majority at least of Inebriates in *this* country! I have never met with this co-operation; but have, on the contrary, found all the efforts of a moral perversity (which includes wonderful perseverance and patience, with cunning or deceit, in the pursuit of its schemes for self-indulgence) concentrated on the neutralization of the philanthropic endeavours of the physician! In America, we are told, those who violate parole and infringe the regulations established for their benefit are to be found "only amongst those whose *moral* natures are imperfectly developed;" but this may be said of all the Inebriates that have come under my notice in Lunacy practice. "Dipsomania" belongs to the category of "Moral Insanity" by common consent of alienists; and that kind or degree of Drunkenness which is "Habitual," in the sense of the English or Canadian Bills, is unquestionably associated with perversion of the Moral sense. Where such perversion exists, experience has taught me that it is folly to expect the honourable observance of rules of any kind! Only the other day I made an experiment with a patient, the main feature of whose insanity is want of control of her appetite for alcoholic stimulants. She had been about six months under treatment, without being permitted access to town *un*attended; but her conduct had been such as to render it possible that she had regained a sufficient power of self-control over her propensity to justify personal liberty. In order to test whether, and how far, this power existed, she was allowed to go out on parole—that is, *un*attended—to visit her relatives in town. On two occasions marked excitement was the result—not such, however, as to give rise to the suspicion that she had made use of stimulants; but the third time she returned decidedly intoxicated, having violated the printed parole regulations in several particulars. The privilege of parole was of course at once suspended. At Binghampton restrictions of personal liberty exist resembling those of a Lunatic Asylum. Certain patients only are allowed out "on pass," and occasional abuse of the parole privilege occurs, just as it does in Hospitals for the Insane. In opposition to the opinion and experience of Dr Day, I hold that, 1*st*, such a sincere desire for emancipation from their morbid appetite as he describes, such an earnest co-operation in the use of remedial or reformatory measures, implying as they do the most irksome restrictions, exist only in a minority of cases in this country, if they exist at all; and, 2*d*, there *is* hope of benefit from sufficiently long *compulsory* abstinence from the use of stimulants, though no desire exists on the part of the patient to emancipate himself from the thraldom of his morbid propensity.

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[1] "The chief of these rules," says Dr Manning ("Report on Lunatic Asylums," p. 150), "are total abstinence from intoxicating liquors, and confinement to the grounds of the Institution."

For these and other reasons, I believe the principle of treatment adopted at Binghampton, and strongly advocated by Dr Day, is *not* suited for adoption in this country. In other words, the "voluntary principle" can be adopted only to a limited extent as regards admission. If a "Habitual Drunkard"—using the term as defined in the English and Canadian Bills—does not see fit to place himself voluntarily in an Inebriate Asylum,—and I believe, in the majority of cases, he certainly will not,[1]—he should be "committed" and subjected to detention just as the insane are. Whether, however, *admission* be voluntary or compulsory, the physician of such an asylum should possess the fullest powers of *detention*, including the determination of its *duration*. In my own experience, "voluntary boarders" in lunatic asylums—that is, persons who cannot be certified as insane, yet are willing to submit themselves to the restraints of an hospital for the insane—do not amount to more than a *fraction of one per cent.* of the admissions! I have this further objection to an imitation of the Binghampton practice in this country, that in the "New York State Inebriate Asylum" the

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[1] The law of Scotland *allows* a man to *inhibit* himself for Drunkenness: that is, he can place himself under trustees, without whose sanction no act of his is valid. But I have never either heard of, or met with, an instance of anybody thus voluntarily surrendering the management of his affairs.

temperance treatment extends only to alcoholic liquors: there is not only an unrestricted, but inordinate, use of tobacco and coffee, which is just substituting one stimulant—one bad habit—for another! The permission of the filthy and noxious habit of *chewing* tobacco, on the one hand, and the absolute exclusion of alcohol in every shape—even as medicine[1]—on the other, are prominent anomalies in the Binghampton system of treatment.

It must be obvious to every one who gives attention to the subject, that there are various classes of habitual drunkards, requiring a corresponding classification of Inebriate asylums. There is, in the first place, the broad distinction between rich and poor. There can be little doubt that Retreats for affluent Inebriates will spring up whenever the proper treatment of the habitual drunkard is legalized. The establishment of such Retreats may be safely left to private enterprise. But for the poor, and even for the lower middle class, it will probably be necessary for the State or the public to take or direct action, just as it has done in regard to lunatic asylums. Then there is an equal practical distinction between the patient who comes from the midst of a private family, having been "nobody's enemy but his own," and the drunkard by habit and repute, who has been repeatedly committed or convicted to and in the police court. While the person first named goes appropriately to an Inebriate Home, where the treatment is simply custodiary and restorative, the second ought to be consigned to a Reformatory, where residence is partly also punitive. Accommodation for the first will be found in a private asylum; that for the second, according to the Dalrymple Bill, in special wards of a poorhouse or prison. It is also matter for consideration whether provision for the reception and treatment of cases of *Delirium tremens* would not be more appropriately found in an Inebriate Retreat, department, or ward, than in a common or general Infirmary?

IV. *Duration of Treatment.*—There prevails, I believe, great misconception as to the *period* necessary for the reform or recovery of the habitual drunkard. In the majority of cases, *years* are required instead of days, weeks, or months; while a minority are incorrigible, requiring confinement for life, or transfer to ordinary lunatic asylums. The English Bill fixes the minimum period of confinement at three, and the maximum at twelve, months, though it provides a power of shortening or extending its duration. All restrictions as to the length of treatment are, however, not only unnecessary but mischievous. The duration of treatment should be determined in all cases by the Physician-superintendent of the Inebriate Asylum, just as is at present the practice in lunacy. If, however, as in lunacy practice, the relatives or guardians of patients have it in their power at any time to remove them, all the efforts of the physician on their behalf will, in many cases, be neutralized. *Premature removals*, in opposition to medical advice, are of everyday occurrence in lunatic asylums, and their fruits are too frequently of a serious kind.[1] In all classes of Inebriates it is desirable that the physician should have a greater power of detention than he has at present in the case of the insane; and especially that he should have power of preventing premature removal, where guarantee is not given for the proper custody or treatment of the patient elsewhere. In this point of view, the permissive power of removal bestowed on the curator by clause 17 of the Canadian Bill is much too liberal.[2]

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[1] Thus "*Watery* extracts and infusions of drugs are given instead of *Tinctures!*"—(Manning's Report, p. 151.)

In Queensberry Lodge, the average duration of treatment varies from one to four months. The result is, however, that of 71 boarders admitted during the three years between 1866 and 1869, "the greater part have been only one month, and 10 of these *returned* a second time."[3] This shortness of residence is inseparable from the "voluntary" system of treatment. Accordingly, it is even more marked in Binghampton, and the Washingtonian Home (Boston, U. S.), in which the average duration of treatment is 27[4] and 24 days respectively. At Binghampton the *cures* are said to amount to 66 per cent.; but I am not aware whether a *temporary* or *permanent* recovery is implied. In either case, the percentage strikes me as unsafely high,—much higher than it will probably be in this country among *habitual* drunkards. In institutions such as Binghampton, where residence is voluntary, and in a country where the same stigma does not attach to intemperance that exists in Britain, it is probable that the class of entrants is very different from that which would constitute the community of inebriate asylums established under at least the English Bill. Moreover, it is most difficult to determine what constitutes *cure*, *recovery*, or *reform*, whether temporary or permanent;[5] while it is probable that the superintendents of "Voluntary" Homes represent statistics in their most favourable light. Of 228 cases treated at Binghampton, there were 113 "reformed" after the first trial, 11 after the second, and 4 after the third; while 25 were "discharged with no hope of improvement," 4 died, and 3 were "discharged as insane." The Washingtonian Home in 1865 admitted 270 patients. Of these 26 *returned a second time*, 10 a third time, 8 a fourth, and 4 a fifth time! 184 were regarded as "reformed,"[1] 42 "improved, with hope of ultimate cure," 10 were "incurable and not fit to be at large." By the New York law, "commitment" involves confinement for a period not exceeding a year. Voluntary submission to treatment, both in this country and America, is sometimes for a fixed period, agreed on beforehand; the probable result of which, in too many cases, is that the patient throws off all control and discipline before it has had time to effect any real good! By the Canadian Bill (clause 9), there must be a year of sobriety before the patient is freed from his "interdiction"—a restriction that will appear unnecessarily harsh or severe only to those who are *un*acquainted with the Natural History of Habitual Drunkenness!

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[1] *Vide* 33d Report of the Murray Royal Institution, 1860, p. 9; 30th, 1857, p. 10; 31st, 1858, p. 9; 32d, 1859, p. 14.

[2] Section 10 of the Act (passed on 27th March 1857) establishing the New York State Inebriate Asylum renders it *optional* for the "Committee" of a Habitual Drunkard to place his ward in the said Institution; and it appears to leave his discharge (in the event of the patient being confined in the asylum) also in the hands of said "Committee!"

[3] Report by the Directors of the House of Refuge for the Destitute, Queensberry House, Edinburgh, 1869, p. 11.

[4] The latest account of Binghampton (which is to be found in an article entitled "The Rational Treatment of Drunkards," in Macmillan's Magazine for August 1870) gives the number as 96, or upwards of three times as many! Probably it is in error. At all events, there is, in this and certain other respects, a marked discrepancy between *Popular* and *Medical* accounts. The institution in question has not only been made the subject of recent description in the *Atlantic Monthly* and other serials, but it was also the subject of much more serious—and, presumably, more accurate—*Medical report* by [illegible] Manning, in his "Report on Lunatic Asylums" (chapter on "Asylums for Inebriates," p. 148), submitted to the Government of New South Wales in 18[illegible]

[5] *Time* is the only satisfactory test of the reality of recovery or reformation.

ARTICLE III.—*Two Cases of the Cirrhotic Form of Bright's Disease, terminating in Apoplexy.* By W. ALLAN JAMIESON, M.B., Berwick-on-Tweed.

THE variety of Bright's disease, associated with increase of fibrous tissue in the kidney, is the one least commonly met with in practice. Of twenty-three cases which have been under my observation for longer or shorter periods during the last five years, seventeen were referable to the inflammatory, four to the waxy, and two to the cirrhotic or gouty form. Part of this rarity may be due to the obscurity which, unfortunately, hangs over the earlier stages of the latter, there being little to direct attention to the kidneys while curative treatment has any chance of success. Thus, while œdema is seldom absent during some portion of the course of the inflammatory form, and often present in the waxy, it is of rare occurrence in the gouty form, having been unnoticed throughout both the cases narrated below, although in the second the anæmia was strongly marked. Headache, particularly coronal, is mentioned as a frequent symptom; but while this was complained of by George B., it was wholly absent in case second. Reserving any further remarks till after the relation of the examples themselves, I proceed at once.

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[1] This gives a proportion of 68 per cent., which is about the same as at Binghampton. During nine years, the Washingtonian Home treated 3000 cases, of whom 2000 were considered "cured;"—in other words, a proportion of 66 per cent., or exactly the same as at Binghampton.

I. George B., æt. 28, minder in cotton factory, a man of temperate habits, who had suffered since childhood from severe headaches, remittent in character, but much worse of late. Though not feeling very well, he went to work as usual on the 8th October 1866. Soon after beginning his duties he became insensible, but under treatment regained consciousness. When seen by me next day, his left leg and arm were paralyzed, the muscles flaccid, and exhibiting little reflex movement. The pupils were moderately dilated, oscillating to light. The tongue, which was dry and coated, was protruded towards the left side. Liquids were swallowed with difficulty. Bowels had not been opened for two days. Breathing stertorous, respiratory system otherwise normal. Heart sounds natural. Pulse 72, of moderate strength. Bladder under control, urine pale, copious, acid, sp. gr. 1015, contained much albumen, hyaline, and granular casts. Occasionally he became conscious for a moment or two, answered a question, or complained of pain in his head, then again relapsed. No anasarca.

He was ordered one drop of croton-oil every four hours till the bowels acted, hot bottles to be put to the feet, and cold applications to head.

10*th*.—Free evacuation this morning after three drops of oil and a simple enema; was restless during the day, though more conscious. In the evening the breathing was more stertorous; a number of rapid inspirations and expirations were succeeded by some slower ones, average 36 per minute. Pulse weaker, irregular, 120. No reflex movements could be excited in left leg or arm.

11*th*.—Breathing less stertorous, respirations 42, pulse 120. When questioned, replies immediately, though not always coherently.

16*th*.—Articulates pretty plainly. Swallows well. Says he feels pain in cardiac region, but nothing wrong there can be discovered. State of limbs unchanged.

17*th*.—Had a rigor lasting a quarter of an hour this afternoon. Chest resonant anteriorly, loud mucous râles, with inspiration and expiration on both sides. Coughs a little; respiration carried on at a very high pitch, superior costal, shallow, 60 per minute. Pulse 140, weak. Urine now passed unconsciously, of same description as formerly.

18*th*.—Died this morning.

Autopsy thirty-one hours after death.—On removing the calvarium, the dura mater, especially over its anterior portion, was congested. The arachnoid was slightly opaque; over the pons, medulla, and crura cerebri, it was dull, of a pale yellowish hue, and evidently thickened, as was also that covering the cerebellum. There was a little fluid between some of the convolutions. With exception of slight increase of vascularity, nothing unusual was noticeable on slicing the brain substance down to the centrum ovale majus. On opening the right lateral ventricle, it was found to contain, and its cavity to be distended by, a large clot of dark and tolerably firmly coagulated blood, which extended into all the cornua, and was about the size of the closed fist. The ventricular walls, to the depth of a quarter of an inch, were stained of a pale yellow colour, but were not softened. The left lateral ventricle contained some bloody serum. The arteries at the base were not apparently atheromatous. On the apex of the heart, which was normal, was a large milk spot. Both lungs were emphysematous. The right, adherent at its apex, was congested posteriorly, and presented one or two spots of pulmonary apoplexy. The kidneys were small and lobulated; their capsule adherent; their section was granular, with diminution of the cortical substance; and under the microscope they exhibited increase of fibrous tissue.

Death took place, in the instance just related, after one apoplectic seizure; in the following one, life was prolonged till the third.

II. Mrs L., æt. 44, whose father had been subject to gout, was active in disposition, and enjoyed good health till about three years ago, when she suddenly lost the sight of her left eye. An oculist, whom she consulted, told her that there was a clot of blood upon the optic nerve. She remained otherwise well till autumn 1869, when the eye became violently inflamed, and for this some treatment was employed, which, as she believed, produced great salivation. When the inflammation subsided, staphyloma of the sclerotic, with protrusion of the eyeball, was left. In April 1870, she gradually lost the use of her right arm, and to a less degree of her right leg, but again in great measure regained it. Towards the middle of June, a second paralytic seizure destroyed the power of the same arm and leg, but is again passing off.

24th June 1870.—Is extremely pale and anæmic. Hair largely mingled with gray. Grasps much more strongly with left than right hand. Pupil of right eye normal; of left, widely and immovably dilated; sight of latter totally gone. Staphyloma of sclerotic on outer and inner side. No headache, temper irritable, emotional faculties weakened, but memory and reasoning powers little impaired. Cardiac dulness normal, second sound accentuated; pulse 130, small. Anteriorly, nothing abnormal in respiratory system; posteriorly, comparative dulness on right side, with faint and distant breath-sounds. On left side respiration puerile. Has no cough, and can lie equally well on either side. Tongue pale and flabby, anorexia, while the stomach rejects almost everything. Bowels confined, liver and spleen natural. Urine copious, 1010, neutral, contains nearly one-fourth albumen; deposits hyaline, finely granular and fatty casts, and epithelia studded with oily granules. Some pains in loins; catamenia regular, rather profuse. No œdema. Endeavours were made to overcome the irritability of the stomach by giving milk guarded with lime-water in small but frequent doses, and by large doses of bismuth, and to combat the anæmia by a mild form of iron. She soon tired of the milk, however; and as her excitability increased, being aggravated by sleepless nights, by attacks of dyspnœa, which made her spring up in bed to avoid what seemed a sensation of impending death from suffocation, and by anxiety for her family, I tried first the hydrate of chloral, with only partial success; then small doses of morphia, subcutaneously, which soothed her and procured refreshing sleep.

Things went on in this way till the 6th of July, when she began to complain of attacks of cramp in her left arm and leg, and in the muscles of the face; these were intermittent, but deprived her of the power of speech while they lasted. Still there was no headache. Bowels open, but quantity of urine diminished. At 2 A.M. on the 7th, her mouth was drawn to one side, and the left arm and leg became paralyzed, but consciousness remained for some time longer. At a quarter to five the breathing was stertorous, right pupil dilated and insensible to light, pulse 100, heart's action violent and tumultuous; and death ensued at 9 A.M.

Permission was obtained to examine the kidneys, which, ten hours after death, were found to be small, with thickened and adherent capsule. On section, each contained a few small cysts, the cortical substance was diminished, the cones were nearly natural, the surface of the section was mottled, while under the microscope many of the convoluted, and some of the straight tubules were filled with granular and fatty matter. The fibrous tissue throughout the organ, but particularly around the Malpighian tufts, was markedly increased.

In this case the sequence of phenomena consequent on the renal affection was most interesting: first, retinal hæmorrhage; then, after a long interval, retino-choroiditis involving the sclerotic, and leaving permanent changes in that tunic; and finally successive attacks of sanguineous apoplexy. Perhaps, in a similar case, the ophthalmoscope might point to the organ at fault, and at least save the patient from the risks attendant on mercurial treatment.

Although the following case probably belongs to the waxy rather than the gouty form, I may be permitted to notice it briefly, since it seems to afford an example of a less common complication of Bright's disease. Albuminuria is not unusual in the latter stages of diabetes, making the prognosis more grave; but in this instance the albuminuria appeared the primary affection, while the glycosuria was superadded.

III. James Stanley, æt. 50, weaver, an inmate of Preston Workhouse, had been in indifferent health for twelve years. His legs have swelled more or less for eight years, and at times his urine contained blood. Was rather intemperate, and had a sore on the penis twenty-five years ago.

On the 28th December 1866, his state was as follows:—His appetite was good, but he was annoyed by great thirst. He made about 160 ounces of urine daily, which was acid, sp. gr. 1032, contained one-third albumen and sixteen grains of sugar per ounce, as estimated by Dr Roberts's fermentation test. It deposited phosphates, hyaline casts, and withered epithelia. He was anæmic, and had ulcers on both legs. There was dulness with crepitant râles at base of left lung, and he complained much of headache. He was ordered sulphate of iron with sulphuric acid and Epsom salts, and full workhouse diet.

On the 2d February 1867, was so well as to be able to work. The urine had diminished to 100 ounces daily, was alkaline, 1008, and contained a mere trace of albumen or sugar. I saw him again in June of the same year, looking better, but I had no opportunity of ascertaining the condition of his urine.

ARTICLE IV.—*On Recurrent Development in Disease.* By CHRISTOPHER JOHNSON, Esq., F.R.C.S., Lancaster.

THE term "recurrent" is used, in this communication, in its widest acceptation, as indicating a tendency to return, after an interval, to a former type—to re-assume an old form.

That something of this kind occurs in disease, may, I think, be inferred from the history of medical practice.

Dr Holland (*Medical Notes and Reflections*) observes:—"The most important question of treatment, in influenza, doubtless regards the extent to which antiphlogistic means may be carried, or the fitness of employing them at all; and the point as to bleeding is that which stands foremost here, and has chiefly embarrassed practitioners." May not this be said of almost every disease? Are not these the main questions the profession has to consider now?

Dr Theophilus Thompson, in his *Annals of Influenza*, tells us that, in the epidemic of 1510, bleeding did harm; in 1557, that at Mantua, Carpentaria, 2000 patients were let blood, and all died; in 1578, bleeding was hurtful, except where spitting of blood, pleurisy, or pneumonia, was present. In 1675, Sydenham advised caution in bleeding, and attention to the accompanying fever, rather than to the chest complications. In 1729, bleeding was found beneficial, whilst in 1732 and 1733 it proved of little value.

In 1737, Huxham writes, "In the cure of this disease we departed a little from the method established in the year 1732; for there was much greater call for the lancet, and to be often repeated."

In 1758, early bleeding was advised; in 1762, much bleeding did hurt; in 1767, bleeding was borne well; in 1775, it was found sometimes necessary to resort to frequent bleedings.

In 1776, great difference of opinion as to the propriety of bleeding prevailed.

Dr Ash of Birmingham remarked that the state of the blood at Birmingham was different from that found in London, and that, in one workhouse, three patients who were bled all died, and that all who were not bled recovered.

Want of space deters me from multiplying proofs of the alternate departure and return of the sthenic type of this disease.

In the May number of this Journal I gave a selection from the works of many eminent practitioners who flourished at the commencement of the last quarter of the last century, who, writing of different diseases and from different places, agreed in expressing their opinion that a change had come over the constitution of the inhabitants of this country, and that patients would no longer bear the active treatment previously employed, even in those diseases for the relief of which it had been considered appropriate. Peripneumony, as it was then called, was one of the complications which even the more cautious practitioners considered indicative of bleeding. Dr Falconer, in treating of the influenza of 1802, remarks—"I must freely own that there appeared, in several instances, a strong necessity for active operations. The peripneumonic symptoms were so urgent as to supersede all general cautions respecting bloodletting, and admitted of no alternative; nor have I observed that the persons on whom this operation was practised suffered from any consequence that might be supposed to attend this evacuation. On the first appearance of this epidemic, I was deceived by the general opinion, and indeed by some recollection of the same complaint in 1782, when bleeding appeared in some instances to aggravate rather than to relieve the symptoms." Hospitalism, as described by the late Sir J. Simpson, and treated by Mr Skey, seems only a recurrent development of the jail-fever of the last century.

Dr Campbell, of Lancaster, published, in 1785, a pamphlet on the Typhus or Low Contagious Fever, and, in the course of it, gave an account of a virulent epidemic which broke out among the operatives employed in the cotton-mills at Lancaster and at Backbarrow. Of the treatment he says—"As I considered this fever to be perfectly analogous to that which attends the ulcerated sore-throat, I set out with the same general plan of cure as I had experienced to be successful in that disorder; and upon this principle, holding evacuations to be pernicious, and tending to increase the state of debility which accompanied and gave a dangerous tendency to the complaint, I endeavoured to support the strength of the patient by means of tonic and cordial medicine and nutritious diet." He bled nobody, considered constipation as desirable, and cultivated it by means of aromatic confection and opium, and gave wine and bark.

Dr Heysham, of Carlisle, about the same time, wrote on jail-fever. His work is out of print, but a very able review of it will be found in the eighth volume of Dr A. Duncan's Commentaries. The reviewer says—"The treatment which was adopted and successfully pursued at Carlisle appeared to differ in some circumstances from what has hitherto obtained in general practice, particularly in the more early application and the freer use of bark and wine." Dr Campbell advocated a more liberal dietary for prisoners during the prevalence of epidemics. He lays down the sound principle that, whilst magistrates must not make a jail a place for idleness and feasting, they have no right to subject prisoners to the risk of loss of life, or to discharge them, at the end of their term of imprisonment, in a state of health less robust than when they were committed.

Compare, with the recorded opinions of these two old physicians, the following description of the practice of an accomplished surgeon of the present day. "Mr Skey is well known as a vehement Brunonian; he affirms that, within the last forty years, the treatment of disease has undergone great and important changes, and that the consumption of wine and brandy in the London hospitals has increased fourfold. He believes that almost all kinds of inflammation require tonic treatment; which phrase, from his lips, means good diet, bark, and wine. He believes the liver the most inoffensive organ, and that constipation is, under many circumstances, an advantage rather than otherwise."—*British Medical Journal*, 18th June 1870.

Dease, of Dublin, in 1783, gave an account of a miliary fever that affected lying-in women. He says—"As the general mode of treating lying-in women is much altered from what it formerly was, the method at present being nearly the opposite to that which prevailed some years ago, it is to be hoped that should miliary or puerperal fevers again become epidemic, they will not be attended with so fatal consequences."

Dease gives the treatment pursued by many able men in his day. Hulme advised "great caution in bleeding." Dr Leake, who wrote soon after, "placed his whole reliance on early and copious bleeding." Denman, in 1773, "cautiously recommends bleeding; however, he thinks it necessary to take away some blood in the beginning." Dr Kirkland, in 1775, advised "bleeding and gentle purging, combining antiphlogistics and sudorifics with a prudent use of opium; when the disease puts on a putrid appearance, he adopts another kind of conduct—he restrains colliquative purging, and endeavours to correct the materia morbi by administering freely bark, etc."

Dr Butler, 1775, thought bleeding seldom advisable.

Mr White, of Manchester, 1773, "thinks a true puerperal fever is originally caused by a putrid atmosphere, and may be classed among putrid diseases;" and "he is of opinion that it is a fever of the same genus as jail and hospital fever." He thinks bleeding seldom necessary.

Dr Manning, in 1775, "is much against bleeding."

Dr Home, in 1780, found that "bleeding seldom produced any good effects."

Dease thus sums up: "From the cases he has related, and from all that has yet been wrote on the subject, we may conclude, with great truth, that we know little of the nature, and still less of the cure, of puerperal fever."

Dr Campbell, in the treatment of typhus, gave opium largely; and his practice in this respect is frequently alluded to by contemporary writers. He generally used a combination of camphor julep, antimonial wine, and laudanum. Dr Martin Wall of Oxford, 1786, treated fever on Dr Campbell's plan. He gives many instructive cases. In one case the apothecary refused to repeat the draught, in consequence of a belief that it had produced too free a diaphoresis. After this Dr Wall tried the opium without the antimony, and found it did better. He divides his cases into three groups—1st, Those treated with opium and antimony; 2d, Those treated with opium without antimony; and, 3d, Those in which opium did not do good.

Fifty years later, Dr Graves of Dublin, having failed to produce sleep in a case of fever, tried opium, antimony, and camphor with great success. All old Meath men associate the name of Graves with tartar emetic and opium. He took great credit for the use of this remedy, and claimed originality. No one who knew him will believe he had ever heard of Wall's or Campbell's cases. The adoption of the old remedy, after so many years, with success, may fairly be cited in support of my theory.

Pneumonia was, at the beginning of this century, treated antiphlogistically. Cooper, in "Good's Study of Medicine," 1829, mentions that Dr Good, in a former edition, had observed a change, and advised caution in bleeding, on account of the tendency to assume a typhoid form. Cooper ridicules this idea, and advises free bleeding; and free bleeding continued to be employed till Bennett and others returned to the supporting method.

In a recent number of the *British Medical Journal*, a case of sthenic pneumonia is recorded, which Dr Stokes treated by bleeding successfully; and several articles have lately appeared in the *Medical Times*, advising a return to the old remedy in other disorders.

A hundred years ago many eminent practitioners refrained from bleeding in diseases, for the relief of which it had been considered especially needed. Fifty years later depletion was most unsparingly resorted to for the relief of symptoms which, in our day, would seem most emphatically to forbid it.

Cooper alludes to this in page 230, vol. ii. of "Good's Study of Medicine," 1829.[1] "It is true we are got back again to a very free use of the lancet in many instances, which would seem to show that we had completed a revolution in our general temperament, as well as in our general temperance; for it is not a little singular that while the lancet is still used with comparative caution in inflammatory fever, it is chiefly employed, and often unsparingly, in typhus or putrid fever."

In the same volume, in the chapter on Typhus, many instances are given of the successful use of free bleedings. Dr Gooch gives many modes of testing the similarity of an epidemic to one that had gone before, and places most reliance on a similar mode of treatment being successful. He says, "A question of great difficulty and importance still remains, whether the puerperal fever accompanied by inflammation of the peritoneum does not assume different types at different seasons.

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[1] "On some of the more important diseases peculiar to women."—New Syd. Soc. Ed., p. 16.

"Suppose that, on applying these remedies to all these cases, with the same activity, at the same stage of the disease, and as far as can be made out under the same circumstances, they produced different effects on different cases, some being relieved and recovering, others being made worse and dying; this would be more conclusive evidence of a difference between these cases than symptoms and morbid appearances were of their identity." "The effects of remedies on a disease, if accurately observed, form the most important part of its history; they are like chemical tests frequently detecting important differences in objects which previously appeared exactly similar."

How then can we account for the varied success of the same mode of treatment at different periods, except on the supposition that the diseases treated underwent a like change?

ARTICLE V.—*A few Ideas regarding the Subject of Aphasia.* By F. PAGE ATKINSON, M.D., etc., late Surgeon, St Bartholomew's Hospital, Chatham, and Royal South London Dispensary.

THERE are few diseases which attract the attention of medical readers so much as that of Aphasia. The *rationale* of the symptoms and the pathology of the disease are so little understood that a wide field is open for speculation and inquiry. Take, for instance, that most distinctive feature of the disease, "loss of speech," what does it arise from? Paralysis of the faculty, or lingual ataxy? Then, again, what is implied by the expression loss of memory? Is memory, as it were, paralyzed? or is there a deficiency of mental co-ordination? Now, in order to arrive at some conclusion regarding these questions, we must first of all give some idea of what we consider speech and memory respectively to consist.

Speech appears to me to result from the mind connecting certain things with certain sounds produced by certain movements of the mouth and tongue. Those born deaf are incapable of speech, owing to their want of appreciation of sound; but they can express their thoughts by writing and by certain movements of the fingers and hands. They have the capability of speech, but, from want of the faculty of hearing, it cannot be called into action. In these cases the mind is perfect in every particular, consequently I believe the capability for speech is perfect also. Again, those who have been born blind, or become so from some accidental cause shortly after birth, are longer, I believe, in learning to speak, owing to their being unable to perceive what movements of the mouth produce the several sounds. Speech, in my opinion, is simply reason directing the motor nerves of the tongue, lips, and palate. We see in the child the mind first coming into play, and then speech following; without the first existence of the mind speech is impossible. Speech cannot come before the mind exists to appreciate different sounds and surrounding objects, so that in those cases where there is a decided deficiency of brain or helpless idiocy speech is absent. If we attempt to localize speech, then we ought to assign some spot for noise also, because speech consists simply of various modifications of sounds. The mouth acts in speech as does the larynx in singing. The mouth makes by instruction various embouchures, through which air is forced and various sounds produced. The mouth may be formed for the latter, but no speech is produced till there is an ingress or egress of the breath. In some cases there appears to be some difficulty in directing the lips, tongue, etc., and consequently an incorrect pronunciation is given to the words spoken. We find this more especially in French words spelt with the *ieu*, and in Scotch and German ones containing the *ch*. If this faculty, pronunciation, arose from other than a simple want of proper education, some deficiency in the spot assigned to speech ought to be made out. Now, in aphasia the patient is able to make a noise with his throat, and produce both high and low notes, but he cannot utter words to express what his mind wishes. He makes an attempt to speak, but finds, from some cause or other, he is unable to do so. The tongue is never in the slightest degree paralyzed, but only, like a ship deprived of its rudder, incapable of being steered.

Dr Brown-Séquard relates a case of aphasia in which the patient was unable to express "Yes" by lifting up one finger, and "No" by two, although told to do so; or, in other words, where the patient evinced clear signs of being afflicted with a kind of locomotor ataxy. One, therefore, can scarcely come to any other conclusion than that the want of speech in aphasia results from a want in the power of co-ordination, or, in other words, from lingual ataxy, and not from paralysis of the faculty. The next point to be taken into consideration is the "loss of memory;" and in answer to the question, What is memory? I would say that it consists of impressions made upon the brain by the various senses of hearing, sight, smell, taste, and touch, which are capable of being recalled on subsequent occasions. It is more or less perfect according to the amount of coordination able to be exerted both at the time of the impression and the time when the impression requires to be recalled; but it matters not how perfect the impression may have been at the time; if anything afterwards arises seriously to interfere with mental co-ordination, it cannot be recalled. This forgetfulness may be temporary or lasting, according as to whether the causes which have brought it about are temporary or lasting. Alterations in the structure or condition of the brain, or in the quantity or quality of the blood, interfere with its integrity. It becomes lessened in cases of mollities cerebri, occasionally during convalescence from severe attacks of fever, and in the case of those labouring under the effects of alcoholic intoxication. A drunken man suffers temporarily from ataxy of locomotion, speech, and thought. In some slight cases of aphasia there appears to be some difficulty in understanding what is read; this cannot arise from any other cause than a difficulty in co-ordinating thought. Some patients, if asked to feign the expression of joy, surprise, or pain, are perfectly unable to do so, but when these feelings really exist the expression appears quite automatically. Others, it is said, cannot recall the name of an object presented to them, though they know its use and recognise the name if it be mentioned. For instance, though they know the use of a spoon, they are unable to think of its name, but when it is mentioned (from the fact of the name of the article and its use having always been so intimately associated) they at once recognise it; but little co-ordination is here required, the action of the mind is like some actions of the body, almost automatic. Every person at one time or another suffers from temporary forgetfulness, and the name of a person or thing (although he or it may be present to the imagination) for the time being cannot be recalled. From these considerations, therefore, and those mentioned above, I cannot but think aphasia should be more closely associated with the subject of locomotor ataxy.

ARTICLE VI.—*A Case of Quadruplets.* By J. W. MILLER, M.D., Dundee.

ON 6th June 1870, about 2 P.M., I was called to Mrs W. M. in her fifth labour. Her pains had commenced early in the forenoon. Her last menstruation occurred about the middle of October, so that she was now about the middle of the eighth month of her pregnancy. She was very big, and for a month or two back had been "very frail," and had suffered from considerable œdema of the lower extremities. At 2.30, the os was almost fully dilated and the membranes protruding. The pains were languid, and after a dose of ergot, at 3.15, I ruptured the membranes. The head presented. A male child was quickly expelled at 3.30. I had barely time to tie the cord and remove the child, when a second bag of membranes protruded at the vulva. These having been ruptured, the breech of a second child was found presenting. I extracted it easily, about three minutes after the first; it also was a male. A third bag of membranes came almost immediately outside the vulva, and burst spontaneously with a great gush of liquor amnii. The feet presented, and the third child, a female, was extracted about five minutes after the birth of the second. On passing the hand over the abdomen the uterus was found still large, and examination revealed a fourth bag of membranes, which I ruptured. The head presented. The uterine contractions being very feeble, I administered another dose of ergot, with about a glass of whisky, but the head continued to make very slow progress. The patient being rather exhausted, and moreover somewhat panic-stricken under the very extraordinary nature of the event, I sent for the forceps, and with one blade over the occiput scooped out the head. This child was born at 4.10, about half an hour after the third; the delivery of the four children thus being completed in about forty minutes. The first three were born in a fairly vigorous condition; the fourth was dead. One of the placentæ was single, and came away almost immediately; the other three were in one large mass, and were extracted about ten minutes after the birth of the last child. The uterus contracted well, and there was no hæmorrhage. The patient's pulse was 70, and of fair strength. The female child died during the ensuing night. At my visit next day one of the others seemed to be dead, revived a little towards evening, but died during the night. The other, and last, died next day. I was allowed to weigh two of the children, and found each to weigh about 3¼ lbs.; the four together would weigh about 13 lbs.

The mother for a few days had considerable œdema of the face and legs, but this quickly disappeared, and she made an excellent recovery.

ARTICLE VII.—*History of a Case of Fracture of the Femur, bearing chiefly on the Diagnosis of such Lesions.* By JAMES MORTON, M.D., Surgeon to the Glasgow Royal Infirmary; Professor of Materia Medica, Anderson's University.

(*Read before the Glasgow Medico-Chirurgical Society, 4th February* 1870.)

J. K., æt. 37, admitted 2d August 1866, with simple fracture of upper part of femur, caused by patient falling down a stair. On admission, the limb was very much swollen; hot fomentations ordered. Patient is quite blind in both eyes, having had both eyes operated on for cataract; one was done by Dr Mackenzie of Glasgow, the other by Dr Robertson of Edinburgh. He has also curvature of the spine.

5th August.—Swelling considerably diminished, and fracture put up in long splint.

6th.—Passed a very restless night; no appetite; great prostration. Hab. sp. hordei ℥iv.

11th.—℞ Hydr. creta gr. iii.; pulv. rhei gr. iv. F. pulv. To be taken at once.

12th October.—Dismissed well to Convalescent Home. (It would seem that there was nothing unusual to notice between the two dates last mentioned.)

Re-admitted 23d March 1867. This patient was in the House in August 1866, and was treated for a simple fracture of the upper part of the left femur, the fracture being situated high up and near the neck of the femur. He was for a long time in the ward, the whole limb being put up in a starched bandage for a long time (about six weeks), after the long splint had been removed. He was dismissed on the 12th of October 1866, and sent to the Convalescent Home, where he remained for five weeks, and then went to his house in Glasgow. His medical attendant called on him some time ago, and stated that his thigh was dislocated, and not fractured. The remainder of this report contains errors due to Kennedy's blindness, as it was partly taken from him, and it also mentions names, so that I have omitted it.

Thus far the report of this case, which is very imperfect, presents nothing unusual, and would not have attracted more than common attention but for the subsequent history. The brevity of the report shows that no doubt existed then as to the nature of the case. The only circumstances in the poor man's case that are noteworthy, were the lamentable loss of vision, notwithstanding the efforts of the skilful operators under whom he had been treated; and the curvature of the spine, which was considerable, and deserves special attention, as it interfered with the treatment of the injured limb, and to this, in great part, is to be ascribed the amount of shortening which took place, and which must have formed one of the sources of fallacy in the formation of the opinions of those who were afterwards found to be in error in their diagnosis. I have said that the report, as found in the ward journal, is very imperfect. The progress of the case ought to have been noticed, and especially the fact that, very early in his residence in the Infirmary, a bed-sore began to form over the most prominent part of the spinal curvature, which compelled us to remove the long splint; and, in consequence of this, the shortening of the limb was greater than, in other circumstances, it might have been; and the amount of shortening might have been approximately stated. It must have reached nearly two inches. The first report in the journal does not state which limb was fractured, but the report on his re-admission mentions that it was the left. This, and the other imperfections of the report, serve at least to show that no special attention was bestowed upon the case. It was thought not to require such.

Hitherto little or nothing has been stated calling for special remark, if we except the blindness and spinal curvature, but its after history affords lessons too valuable to lose, and this forms my reason for relating it. In performing this somewhat disagreeable task, I must of necessity speak of opinions which were found to be untenable, and I may take this opportunity of saying that I have no desire whatever to give unnecessary prominence to the errors any professional brother; and I may be allowed to follow a course barely polite but convenient, that of using the letters of the alphabet in their natural order in place of names. I am quite aware that the case is known to a limited number already, besides the actors concerned in it; still, it is no part of my duty to publish these, and I feel bound to add, that since the truth was fully demonstrated, no one could have acted more handsomely or more honourably than he with whom the error may be said to have originated. That his example has not been followed by others redounds not to their credit, though this is a reflection I am sorry to put on paper.

The subsequent history of the case is substantially this:—Poor Kennedy remained in the Convalescent Home five weeks, and then returned to the city, where he was seen by the gentleman who had at first visited him on receipt of his injuries before admission, and had then thought that the femur was dislocated. In future, we may call this gentleman Dr A. Still retaining his original impression of the nature of the case, Dr A. stated it to the patient, and sent for Dr B., who affirmed it to be a dislocation. Dr C. saw it, and concurred; Dr D. did the same. Dr E. was of the same opinion, and so were Dr F. and Dr G. I am not aware whether I ought to travel farther down the alphabet. Repeated meetings, thumbings of the poor man's leg, and consultations took place, all ending in the overthrow of my diagnosis. At length, an experienced senior friend was consulted, but, fortunately for my credit, at this stage he could not persuade himself that it was a dislocation; and though all but concussed by the hotly-pressed arguments of his professional friends, with characteristic caution and shrewdness, he remarked that, "if it was a dislocation, it was the queerest one he had ever seen." This same senior friend and I agreed to meet the surgeon who first saw the case, Dr A., at the poor man's house, to re-examine the limb. This we most carefully did in every possible position, and by measurement with tapes, etc., comparing the position of the bony prominences with those of the opposite side, but could not persuade Dr A. of the erroneous nature of his first impression in regard to it.

Some days thereafter it was arranged between Dr C. (then one of my colleagues in the Glasgow Royal Infirmary) and Dr A. that the former should receive the man into the Infirmary, where I was still acting, and make an attempt to reduce the dislocation so called. This is quite contrary to the unwritten rule or etiquette of the house, and I resolved to defeat it if possible. Accordingly, when the poor victim of all this manipulation was brought into a side-ward on the sly, to use a common phrase, I insisted on having him transferred to Ward 29, under my own care as before, and directed my assistant, Dr A. T. Thomson, to summon all the surgeons of the house to a consultation on this much-debated case. One of the physicians who saw the case at this stage was also invited, and the senior friend already alluded to, though not then on the staff of the house.

The following morning the consultants met, and, after a careful and prolonged examination, opinions were taken, beginning with those who had not previously seen the case, and who were uncommitted to any previous conclusion on the question, and a unanimous verdict was arrived at, that the case had been one of fracture of the femur, that the head of the bone was in the acetabulum, and consequently that there was no dislocation. During the consultation Dr C. admitted that he had been mistaken, hence the unanimity of the verdict. After two days' rest, poor Kennedy was dismissed as formerly.

It was more than whispered that at least one of those who thought it a dislocation did not quite subscribe to the conclusion come to at this consultation, and it remains to be ascertained whether further evidence may have convinced him. He offered to stake his professional reputation on his view of the nature of the injury.

3d September 1869.—To-day Dr A. very kindly called upon me with the upper part of poor Kennedy's femur, which showed unmistakably that it had been fractured just inside and partially through the great trochanter, but not within the capsule, and the Doctor informed me that the head of the bone was found to be in the acetabulum, thus as conclusively establishing the non-existence of dislocation. I was told that the unfortunate man had met with another accident, a fall down a stair, which had resulted fatally; that thus an opportunity of examining the parts presented itself; and that Dr A., in conjunction with Dr Hector Cameron, had conducted the post-mortem examination. In this fall he had sustained a fracture of the pelvis and some injury to the head, probably intracranial, and died the succeeding morning about six o'clock, about twelve or fourteen hours after his fall.

Some time after this, Dr A. very kindly presented me with a well-executed cast of the pieces of bone removed, and also a drawing, for which he deserves our best thanks. The fracture appears to have had its locus at the junction of the neck of the femur with the trochanter and shaft, the usual situation of this lesion when it is the result of direct violence; a kind of fracture which has lately been scientifically described by Dr Ogston of Aberdeen in the *Medical Times and Gazette* of 15th May 1869. He states that the bone is divided into three fragments, the first formed by the head and neck, the second by the greater part of the trochanter major, the third by the shaft of the bone and a small portion of the trochanter. This is an exact description of the fracture in the case now before us, as shown by cast and drawing. The most common cause of it is a fall from a height, or with great violence, on the trochanter major, which breaks the neck of the bone and drives it into the cancellated tissue between the trochanters, and this acts like a wedge, splitting or detaching entirely one or both of these processes. This cast and drawing will also establish this, that a very favourable union had taken place, as good not better than we had any reason to hope for, seeing that our usual extending power was not available. It is worthy of mention that some week or two after the consultation in March on Kennedy's case, my hospital colleague called attention to a case precisely similar, according to his own opinion. The case was submitted to a consultation, chloroform was advised, was then and there administered; and when the patient was under its influence, the lesion was ascertained to be a case of fracture of the acetabulum, allowing displacement upwards of the femur, or rather of the whole limb. The similarity of the two cases was thus effectually dissipated. The symptoms of fracture were these—moderate shortening, great pain in moving limb, absence of adduction, presence of eversion of both knee and foot, the former being more marked than the latter, at least in appearance; little or no change in the prominence of the trochanter, though carried a little upwards; and, lastly, osseous crepitation, which was felt to my satisfaction. At the time when the diagnosis was so much disputed, the symptom last-named was absent, the fragments of bone had united; the other symptoms remained as formerly, with the exception of the shortening, which, if in any way changed, was greater than at first.

The points favourable to the idea of its being a dislocation unreduced six months after the accident were shortening, the trochanter being higher up than its normal situation; a diminution of its usual distance from the anterior superior spine of the ilium; and the swelling caused by the deposit of callus and the formation of new attachments, during the natural process of repair of the fracture. It is but fair to remember, however, that in many poor houses—in a box-bed, for instance—the proper examination of such a case is by no means easy; and that the facilities for forming an accurate diagnosis are greater in the Infirmary, where a surgeon can get on all sides of a patient, and assistance of all kinds is readily found. Even there, fractures of the neck of the femur are not very easy to ascertain with certainty; and it was a rule with me in hospital, to take the aid of chloroform to relax the muscles in all such cases where there was room for doubt. The report does not bear that it was used in this case; and, so far as my recollection serves me, it was not employed; but I have a distinct recollection of the production of osseous crepitation by extending the limb and rotating slightly. It follows that I never had any doubt of the nature of the case, and it has always appeared to me unaccountable that no weight was given by others, in the formation of their own opinions, to the favourable opportunities I possessed, so soon after receipt of the injury, of arriving at an accurate diagnosis. To say the very mildest of it, it betrays some want of ordinary respect to the opinion of another.

Its Surgical Aspect.—The surgical lesson that this case is calculated to impress upon us is, that when investigating any similar injury, we should conduct the inquiry without bias, either for or against particular opinions which may have been uttered by surgeons who may have already pronounced upon the case before us, and that we should delay coming to any final conclusion in the presence of any symptom inconsistent with the idea which may be present to our minds. The state of eversion in the injured limb of Kennedy should have served as a beacon and counselled delay. But a state of prepossession in regard to the nature of the case must have existed in the minds of those who examined this fractured limb, otherwise it is not possible to conceive that they should all have overlooked this important symptom, or given to it too little weight in forming their opinions.

But while we deplore the fact that so many surgeons—some of them of long experience—should have allowed themselves to be so swayed by a foregone conclusion as to be unable to perceive their error in diagnosis, it is somewhat of a relief to our *ésprit de corps* to be able to state that those surgeons and one physician in the Infirmary who had not previously seen the case, and were thus under the necessity of forming an opinion for themselves, readily diagnosed it as having been a fracture, and distinctly affirmed it to be not a dislocation. The head of the bone was by them found to be in the acetabulum.

Its Medico-legal Position.—One of the most important considerations in this case is its medico-legal aspect previous to the reappearance of the patient in the Infirmary. It conveys a lesson too valuable to be lightly regarded.

At the time of admission, my assistant and I had satisfied ourselves of the existence of fracture by osseous crepitation and other symptoms; but six months thereafter it was no longer possible to do this, and then there was pitted against us the unanimous opinion of at least seven practitioners—some of them quite entitled to be called eminent. Without wishing to overrate our danger, the position then may be said to have been critical. It is not necessary, and far be it from me to suppose, that any of those who saw this case would willingly have borne testimony against me in a court of justice, in support of an allegation of maltreatment: I know they would not. But, then, suppose the patient had been enraged at what he had good reason to believe had been a blunder, and that he had been of a litigious turn; or, still worse, suppose that he had fallen into the hands of an unprincipled lawyer who would have dragged the witnesses forward, the consequences to me might have been exceedingly vexatious as well as detrimental; and a defence, even although ultimately successful, might have been ruinously expensive. On the other hand, I need scarcely ask you to imagine how damaging an adverse verdict would have proved. The consciousness of being in the right would have proved but a feeble shield against a public condemnation, backed by such a weight of testimony as could have been arrayed against me. It is true that one who saw the man took my view of his case; yet it is doubtful whether even his position and experience would have availed me against such formidable odds. It must be remembered that I speak of the case before the consultation in the end of March 1867, for after its deliverance I felt myself tolerably safe.

After the final termination of this eventful, and, during its progress, somewhat annoying case, my first feeling was not to publish it, from a fear that my handling of it might not prove sufficiently delicate to enable me to avoid offending the *amour propre* of some; and that the act of publication itself might be construed into a desire to exalt myself at the expense of others. To these risks I may be still exposed; and though not conscious of the latter feeling, if I am in this deceiving myself, it may afford another instance of that erring tendency from which none of us are free.

It is not likely that this case will be readily forgotten by those who were actively engaged in it; and while it is to be hoped that we may all profit by it, it is as devoutly to be wished that we may all subscribe to the truth, and join in the spirit of the old aphorism —that "To err is human, to forgive divine."

ARTICLE VIII.—*On the Action of the Cobra Poison.* By J. FAYRER, M.D., F.R.S.E., C.S.I.; Surgeon, Bengal Army; Professor of Surgery in the Medical College of Bengal.

THE THANATOPHIDIA OF INDIA.

(*Continued from page* 250.)

THE ELAPIDÆ.

THIS family has several genera in British India. It is subdivided into the Najidæ, or snakes with hoods or dilatable necks, and the Elapidæ, which have no hoods. In the first section, Najidæ, there are two genera—Naja and Ophiophagus. In the second, Elapidæ, there are three Indian genera, viz., Bungarus, Xenurelaps, Callophis.

The family of Elapidæ is characterized by a cylindrical body; a rather short and tapering tail; nostril lateral. The head has the normal number of shields above, but the loreal is always absent; eye rather small, with a round pupil. The poison-fang has a mark on its convexity, indicating the groove, which is quite open in the Hydrophidæ.

NAJA.

Gunther gives the following description of this genus:—

"Body and tail of moderate length; belly flat; head rather high and short, not very distinct from the neck, which is very dilatable, the anterior ribs being elongate. The shields of the head normal, but the loreal is absent; nostril wide, lateral between two shields; eye of moderate size, with round pupil; one præ, three (sometimes two or four) post oculars. Six upper labials, the third and fourth entering the orbit; the third forms the lower half of the anterior margin of the orbit. Scales smooth, much imbricate in numerous series round the hood; anal entire; sub-caudals two-rowed. The fang is grooved, with foramen at its extremity; one or two small ordinary teeth at a short distance behind it."

There is only one species, and that is *Naja tripudians*, or the Cobra di capello or Naja.

Coluber naja. L. sys. nat.
Naja lutescens. Cantor.
„ tripudians. Gunther. Gray.
„ larvata. Cantor.
„ atra. Cantor.
„ kaowthia. Cantor.

But there are several varieties, each having a distinct name given to it by the natives. They are all most deadly; and though the snake-charmers consider some more poisonous than others, it is probable that any difference that may exist is more due to the vigour of the individual snake than to anything attributable to the particular variety. They all have the hood, and they never attack without distending it. They raise the anterior third of the body from the ground, slide slowly along on the posterior two-thirds, and with the hood dilated remain on the alert, darting the head forward to the attack when anything hostile approaches. This attitude is very striking, and few objects are more calculated to inspire awe than a large cobra, when, with his hood erect, hissing loudly, and his eyes glaring, he prepares to strike. Nevertheless, they are not, I believe, aggressive; and unless interfered with or irritated, they crawl along the ground with the neck undilated, looking not unlike the innocent snakes, but the moment they are disturbed, they assume the menacing attitude I have described.

The *Naja tripudians* or cobra grows to the length of five feet and a half, or even more, and is found all over Hindostan up to 8000 feet high in the Himalaya; but Mr Hodgson says he has never seen it in the Nepaul valley.[1] It is equally dreaded and fatal everywhere. The varieties are numerous, and they are distinguished by the markings on the hood, and by various shades of colour, from the darkest olive or black with a purple iridescence, to a pale chocolate fawn or yellow colour. They are all, notwithstanding their differences of colour or markings, considered by naturalists to be but varieties of one species. They have various names in different parts of India, and are regarded by the snake-catchers as different species, and as having different powers of destruction. Such differences probably depend on age, vigour, or other circumstances, as naturally the intensity of the poison of the different varieties is probably almost equal.

The cobra is a nocturnal snake,—that is, it is most active in the night, but it is often seen moving about in the day. It is oviparous; the eggs, from eighteen to twenty-five in number, are obovate, and about the size of those of a pigeon; the shell is white, but tough and leathery. The cobras feed on small animals, birds' eggs, frogs, fish, or insects; they rob hen-roosts and swallow the eggs whole; they prefer taking their food at dusk or in the nights. They are said to drink a great deal of water; but it is certain that they will live weeks, even months, in captivity without touching food or water. They go into water readily, and swim well, but are essentially terrestrial snakes. They can climb, and occasionally ascend trees in search of food. Cobras are not unfrequently found in the roofs of huts, holes in walls, fowl-houses, old ruins, under logs of wood, cellars, old brick-kilns, and old masonry of stone, brick-work, or mud; such are the common dwelling-place of these reptiles, and where they are frequently disturbed by men, who, stepping on or inadvertently disturbing and touching them, receive their death-wound.

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[1] I believe it is to be found in the Nepaul valley. I have seen it in the Oude Terai.

The cobra is most deadly, and its poison, when thoroughly inoculated by a fresh and vigorous snake, is quickly fatal. Paralysis of the nerve-centres takes place, and death occurs with great rapidity, sometimes in a few minutes, especially when the fangs, having penetrated a vein, inoculate the poison immediately into the venous circulation. The number of deaths caused yearly in India by these snakes is perfectly appalling. The cases in which recovery occurs are, it is to be feared, very few; treatment appears to be of little avail unless it be almost immediate, and then in the case of a genuine bite there is but little hope of saving life. As to the mode of treatment, and other matters connected with the bite of the cobra, and the great mortality caused by it in India, they will be described subsequently.

The cobras are the favourites of the snake-catchers, and it is astonishing with what ease and freedom they are seized and handled by these men, even when in possession of their fangs. They render them temporarily harmless by cutting out the poison-fangs, but these are quickly reproduced, unless, as most generally happens with the fang, all the reserve fangs and germs are removed, in which case the snake is harmless for life. Their graceful movements in the erect attitude they assume with the hood distended as they follow the movements of the snake-charmer's hands, make them an object of wonder as well as fear to all, and the superstitions of the natives about them are endless. The *muntra* or spell is far more potent in their ideas than any drug, and to such they generally trust when bitten. How frequently these fail, the records of any civil station in India will prove; and it is to be feared that the more material remedies of the physician are scarcely more potent for good.

The snake-catchers in Bengal describe a great variety of cobras. The following list was furnished by a very intelligent Mohammedan, who has had much experience, and who, though not a snake-catcher originally by profession, has been one for several years, and is exceedingly expert in catching and handling these reptiles. The first great distinction made by these people, is the cobra with spectacles on the hood, or gokurrahs, and those with one occellus or other mark on the hood, named keauteahs. They maintain that these are distinct species, and that they vary considerably, not only in appearance, but in habits and properties.

The gokurrah has the following varieties:—

1. Kalla, black. 2. Koyah, black and white. 3. Gomunah, wheat coloured. 4. Puddah, yellow coloured. 5. Doodiah, whitish coloured. 6. Tatuliah, tamarind-seed coloured. 7. Kurrees, earthy coloured. 8. Tameshur, coppery coloured. 9. Puddun nag, golden coloured. The 2d, 3d, and 7th being the most common varieties about Calcutta.

The keauteah has the following:—

1. Kalla, black. 2. Tatulia, tamarind-seed coloured. 3. Kurree, earthy coloured. 4. Sonera, gold coloured. 5. Doodiah, whitish coloured. 6. Bans-buniah, mottled white and black. 7. Giribungha, brownish coloured. 8. Koyah, black and white coloured. 9. Sankha-mookhi, like the sankni or bungarus fasciatus, black and yellow. 1st, 2d, and 6th are most common about Calcutta, and no doubt in different parts of Bengal many other varieties are described, and different names are given to those above mentioned, for the natives are fond of refining on points of this kind.

I append a note kindly furnished by Mr Westmacott, of the Civil Service, of the names of certain varieties described in Puruliah, and no doubt many others might be collected, the nomenclature being different as in different parts of the country.

" *Notes on varieties of Cobras, taken at Puruliah, Maunbhoom*, 1866.

" *Airá Gahman.*—Average length 51½ inches. Top of head, purple brown, shading into bright orange in the lower half of the hood. Back, two shades of vinaceous brown in faint stripes. Spectacles, white bordered, dark brown. Throat-band and spectacles underneath, ashy brown. Belly, pinky white.

" *Manilág.*—Average length 36½ inches. Not very common. A remarkably slender neck and broad jaw. Top of head, light brown, shading into yellow in the hood, and back and belly yellowish white.

" (Memo.—I cannot recollect whether this was a spectacled *Gahman.*)

" *Bichá Jarmá Gahman.*—Average 47 inches. Above, ruddy brown and yellow. Hood, reddish brown. Spectacles, yellow, bordered ruddy brown.

" *Kaliy.*—Average length 51 inches. The common black cobra, whole body black. Ring on hood, two throat-bands, and a collar below the hood, ranging in individuals from a creamy white to a dirty gray.

"*Kánta Káris Gahman.*—Average length 48 inches, a light-made snake. Above, vinaceous brown, with yellow tinge in the hood. Spectacles, red. Throat-bands, purple brown.

"*Dudhiya Gahman.*—Average length 44 inches. Top of head, vinaceous brown, darker on the hood, and lighter along the back. Below, ashy white. Spectacles, white, with a dark brown well-defined border.

"*Párula.*—A beautiful snake, of which I never procured but one specimen, which I failed in preserving. Length 41 inches. All above a light shade of purple brown. No spectacles. Hood bright red.

"*Sarsa Gahman.*—The common yellow cobra, largest variety of all.

"*Charara Gahman.*—A large yellow cobra. I have not noted the differences between these two varieties.

"*Basta Karicha Gahman.*—Average length 50 inches. A very dark vinaceous brown, white spectacles, bordered light red."

The chief difference, however, insisted on is that between the gokurrah and the keauteah, and these they regard as distinct from each other as is a sankni (bungarus fasciatus) from a krait (bungarus cæruleus). The gokurrah, they say, is essentially a snake of the town or city. The keauteah is of the fields and jungle. The gokurrah is slower to kill, as its poison is thicker, though most deadly. The keauteah poison is thinner, and takes effect sooner, though it is not more fatal than that of the gokurrah. Both, they say, incubate; and the snake-man informs me that over and over again he has dug them out of holes sitting on their eggs. The gokurrah takes to the water reluctantly; the keauteah freely, and will remain for a considerable period under water. The hood of the keauteah is much smaller relatively than that of the gokurrah, and the body is more attenuated; it is more slender and more active than the gokurrah. The varieties of both eat about every sixth day; they deposit their eggs once in the year, and that in the rainy season.

The keauteah is often found during the rainy season in the huts of the villages, where it has been driven to take shelter by inundation. It is as unusual to find a keauteah, though in the ruins or débris of an old building, as it is to find the gokurrah in the open country. The snake-catchers here say, that they believe that whereas the gokurrah is found all over Hindostan, the keauteah is, if not confined to Bengal, rare in the North-West, and other parts of India. This, however, is by no means certain, and requires confirmation.

The snake-catchers have a curious notion concerning the sex of the cobra. They say that the hooded snakes are all females and poisonous, and that the males are all hoodless and innocent; the male, in fact, of the ophiophagus or sunkerchor, as well as of the naja, gokurrah, or keauteah, is the dhamin or ptyas mucosus. They assert that there can be no doubt of this, and that they have irrefragable evidence of it, and that the dhamin is proof also against the cobra poison if bitten.

It is needless to say, notwithstanding all this, that the story is a fable. The pytas is an innocent snake belonging to a different family, and succumbs rapidly to the poison when bitten by a cobra, as I have proved over and over again by experiment.

The cobra is an object of superstitious veneration and awe to the Hindoos, in whose mythological histories it takes a prominent place.

In a religion that deprecates the wrath of a cruel and destructive power, by worshipping and propitiating the deity in whom that power is vested, it is natural that the type of destruction and the incarnation of evil, as represented in this reptile, should be regarded with peculiar deference.

Many Hindoos object, I am told, to destroy the cobra; and if they find it in their houses, as sometimes is the case, when one has taken up its abode in a hole or crevice in the wall for years, it is propitiated and conciliated, fed and protected, as though to injure it were to invoke misfortune on the house and family. Should fear, and perhaps the death of some inmate bitten by accident, prove stronger than superstition, it may be caught, tenderly handled, and deported to some field, where it is released and allowed to depart in peace, not killed. This feeling happily is not universal, and the cobra has many enemies to limit his increase. Besides the natural enemies, such as the herpestes (ichneumon) and other creatures, numbers are destroyed by the low-caste people, who follow the vocation of snake-catchers or charmers, and others also search out the snakes and kill them for the sake of reward. But still the loss of human life from their bites is very great, and seems to call loudly for some plan by which it may be mitigated. An idea of the loss of life caused throughout India yearly by the bite of the cobra and other venomous snakes, but especially the cobra, as it is by far the most common, may be formed from the following information extracted from a recent report of the Commissioner of Burdwan to the Bengal Government:—

He says, "The number of deaths from snake-bite during the last nine years is shown in the annual printed police returns to have been as follows:—

1860	878	1863	1048	1866	929
1861	989	1864	1035	1867	984
1862	1041	1865	1184	1868	1144

Total, 9232 persons killed in nine years, out of a population of 5,701,072.

"There may be a little inaccuracy in the above figures, but they have been compiled over a series of nine years, and it cannot be questioned that they show that there is a mortality of above 1000 persons every year, in a population of nearly 6,000,000 people."

In the district of Midnapore—which the commissioner considers the worst—in the year 1865 there were 530 deaths from snake-bite recorded, out of a population of 1,200,000 persons.

In the district of Beerbhoom, on the other hand, there were in one year sixty cases of death from snake-poisoning, out of a population of 743,685 persons. It appears from the report that women suffer more than men. In 1858, a reward of four annas was given by Government for each venomous snake destroyed in the division, and the magistrate reported in December that Rs.1961.8 had been paid for 1845 snakes destroyed during the year. The reward was reduced to two annas for every poisonous snake brought in; but this was not sufficient inducement, and the numbers rapidly diminished.

	Snakes.	Rs.	As.
In 1859	957	124	4
„ 1860	217	27	0
„ 1861	8	1	0

The magistrate remarked, "that there are few persons who would risk their lives to bring in a live snake for two annas."

In Bancoorah, another district of the Burdwan division, the magistrate proposed that the reward of two annas shall be given for all poisonous snakes brought in dead or alive. This was sanctioned, with a proviso that the magistrate himself should see the snake's head cut off. The reward was raised to four annas for each snake in 1862. On the 14th July following, the magistrate reported that the increased reward had produced its effect—forty-seven snakes had been brought in on one day, and seventy on another day; Rs.89 had been spent in less than a month.

On the 21st July of the same year, the magistrate proposed to reduce the reward to two annas: he says, "ninety-seven snakes were brought in on Saturday, and 118 to-day." The duty of personally supervising the decapitation of the snakes became so irksome, that the magistrate applied to higher authority for permission to depute some one to see this done; but the request was refused.

On the 20th October, the commissioner reported, that from the 29th May to 14th October 1862, 18,423 snakes had been killed, giving an average of 110 snakes a day; and he applied for a grant of Rs.10,000 to provide for the rewards, at the same time proposing to reduce the reward to two annas. On the 6th January 1863, the Government of Bengal remarked, that whereas from 20th May to 14th October, 18,423 snakes had been killed, and from 15th October to 7th December the number had increased to 26,029, giving an average of 463½ per diem, the Lieutenant-Governor expressed his surprise that the average number of snakes killed daily should have increased during the cold weather, and the magistrate was requested to submit an explanation on this point. The magistrate explained it by ascribing it to the increased expertness of the snake-catchers, and the large number of persons who had abandoned their occupation and taken to this comparatively lucrative mode of obtaining a livelihood. It was considered probable that many of these snakes might not have been poisonous; but the magistrate rejoined that he had exercised great care in discriminating, and that 40,000 rupees would not have paid the rewards had they been given for all kinds of snakes. From this one would conclude that the advantages of Bancoorah as a residence must be doubtful. It gives a sad proof of the fatal character of the bites of the Indian Thanatophidia, and there is reason to believe that the greater share of the mortality is due to the cobra.

OPHIOPHAGUS.

There is only one species of this genus, *Ophiophagus elaps*—Hamadryad; native name, Sunkerchor.

It has a variety of synonymes.

Naja bungarus. Schlegel.
„ elaps. Schlegel.
„ vittata. Elliott, Madras.
Hamadryas ophiophagus. Cantor.
Trimeresurus ophiophagus. Dum. and Bib.
Hamadryas elaps. Gunther.

This is probably the largest and most formidable venomous snake known. It grows to the length of 12 or 14 feet, and is not only very powerful, but also active and aggressive. It is hooded like the cobra, and resembles it in its general configuration and characteristics.

Gunther's definition of it is as follows:—" Body rather elongate; tail of proportionate length; head rather short, depressed, scarcely distinct from the neck, which is dilatable; occipitals surrounded by three pairs of large shields, the two anterior of which are temporals; nostrils between two nasals; loreal none; one or two præ, three post orbitals; scales smooth, much imbricated, in transverse rows in fifteen series round the body, but in many more round the neck; those of the vertebral series are rather larger than the others. Ventrals more than 200, anal entire, anterior sub-caudals simple, posterior two-rowed, sometimes all bifid." Maxillary bone with a large fang in front, which is perforated at the end, showing a longitudinal groove in front, a second small simple tooth at some distance behind the fang. The colour of this snake varies according to age and locality. The adult is some shade of olive-green or brown. According to Gunther it is,—

" 1*st*, Olive green above; the shields of the head, the scales of the neck, hinder part of the body and of the tail edged with black. Trunk, with numerous oblique alternate black and white bands converging towards the head; lower parts marbled with blackish or uniform pale greenish. This variety is found in Bengal, Assam, the Malayan Peninsula, and Southern India.

" 2*d*, Brownish olive, uniform anteriorly, with the scales black edged posteriorly; each scale of the tail with a very distinct white, black-edged, occellus, as in ptyas mucosus." This variety is not found in Bengal; Gunther says it is found in the Philippine Islands, and perhaps in Burmah.

"*3d*, Uniform brownish olive; scales of the hinder part of the body and of the tail somewhat lighter in the centre; all the lower parts black except the chin and throat, which are yellow. This variety is found in Borneo.

"The young have a much more varied coloration. They are black, with numerous white equidistant narrow cross bands: one occupies the extremity of the snout; the second across the posterior frontals; the third across the crown of the head, behind the orbit; the fourth across the occiputs to the angle of the mouth; the two latter bands are composed of oval spots. In a specimen from the Anamallay Mountains, the belly is black, and the white bands extend across, being wider than the black; in a second specimen, of which the locality is unknown, the belly is white, each ventral having a blackish margin."

The young ophiophagus might well be mistaken for another genus.

Major Beddome says the young ophiophagus is very like the Dipsas dendrophilla, an innocent snake. The shields surrounding the occipitals are large, and give a distinctive character to the snake. "There is one præ-orbital, seven upper labials, the third and fourth entering into the orbit, the third the largest, the sixth and seventh very low, temporals large, 2 + 2, ventrals 215, 262, sub-caudals 80, 100; the number of entire anterior sub-caudals varies much."

It is probably the largest and most deadly of the Thanatophidia; fortunately, though widely distributed, it is not very common. According to Gunther, it is found in almost every part of the Indian continent; in the Andaman and Philippine Islands, in Java, Sumatra, Borneo, and, according to Dumeril, in New Guinea. Major Beddome of Madras says he has killed one nearly fourteen feet in length, near Cuttack, in Bengal, where it is common. It does not appear to be much, if at all, known in the North-West or Central India; it is most common in the damp climates of Assam, Bengal, Orissa, and Southern India. It has been caught in the Botanical Gardens, near Calcutta, and it is said by the snake-catchers to be not uncommon in the Soonderbunds.

I have heard of an officer being attacked by one in Assam, and being in considerable danger. Dr Anderson, curator of the Indian Museum, has the dried skin of an individual sent from Assam that measures 11 feet 9¼ inches in length; a specimen in the Indian Museum, killed in the Botanical Gardens, Calcutta, measures 8 feet 3¾ inches, and 5⅝ inches in girth. For these measurements I am indebted to Dr J. Anderson.

The ophiophagus, like many other snakes, takes to the water at times. A friend informs me that he shot one in the river near Teryah Ghat, at the foot of the Khasyah Hills, in April last. He was going slowly up a narrow stream in his boat when he met it coming towards him, with its head raised several inches out of the water. A charge of shot disabled it, and it was captured near the river bank, where it sought refuge. My informant had not the means of preserving the snake, so he cut off its head and made a drawing, which is evidently that of an ophiophagus. It was above nine feet in length.

The Rev. Dr Mason, in his work on Burmah, gives the following account of the hamadryad, which is, if not identically the same, merely a variety of the Bengal species:—

"The natives describe a venomous serpent that grows ten or twelve feet long, with a short blunt head, a dilatable neck, thick trunk, and short tail. It is of a darker colour than the common cobra, nearly black. I have never seen it, but the description given me accords so well with the generic characters of hamadryas, that it must be a species of that genus. 'The hamadryas,' says Dr Cantor, 'is very fierce, and is always ready not only to attack, but to pursue, when opposed;' this, too, is a conspicuous trait in our Tenasserim serpent.

"An intelligent Burman told me that a friend of his one day stumbled upon a nest of these serpents, and immediately retreated, but the old female gave chase. The man fled with all speed over hill and dale, dingle and glade, and terror seemed to add wings to his flight, till, reaching a small river, he plunged in, hoping he had then escaped his fiery enemy; but, lo! on reaching the opposite bank, up reared the furious hamadryad, its dilated eyes glistening with rage, ready to bury its fangs in his trembling body. In utter despair he bethought himself of his turban, and in a moment dashed it upon the serpent, which darted upon it like lightning, and for some moments wreaked its vengeance in furious bites; after which it returned quietly to its former haunts. Karens from Pegu describe a species of hamadryad (the belted hamadryad) with black and whitish transverse bands. It is often seen twelve feet long, by a foot in circumference; and one of my informants tells me he has seen them nearly three fathoms long, and proportionately large. It does not appear to be known in these provinces, but the Burmese and Karens have well-established names for the species, and it must be, I think, Cantor's."

Hamadryas ophiophagus. Cantor.
Naja elaps. Schlegel.
„ bungarus. Schlegel.
„ vittata. Elliott.

The Bengali name is sunkerchor, breaker of shells. It is found in the forest and grass jungle; it is said to live in hollow trees, and to climb them readily, being frequently found resting on the branches. As its name implies, it feeds upon other snakes, though probably when its usual food is not forthcoming it is contented with birds, mammals, fish, frogs, etc.

It resembles the cobra, except that it is longer in proportion to its size, and its hood is relatively smaller; it is, however, more graceful in its movements, and turns more rapidly. It is occasionally seen with the snake-charmers, who prize it highly as a show; but they say it is exceedingly dangerous to catch, and difficult to handle before its fangs are removed.

In September 1868, one of about eight or nine feet long was brought to me by some snake-men, but its fangs had long been extracted, cicatrices indicating their former presence. It was of a light olive-green, with arrowhead-shaped transverse bars. It was very much under the control of the snake-man who exhibited it, and sat up, erecting its hood and following the motions of his hand exactly like a cobra. On two different occasions it ate snakes in my presence, two specimens of Passerita mycterizans, that had been killed by a cobra. The snake-man put the head of the passerita into the hamadryad's mouth, and in about a quarter of an hour it gradually swallowed it; during the process it moved slowly about with the head, neck and hood dilated, and it looked very odd with the smaller snake hanging out of its mouth. The fangs had been, as I have said, extracted, but on pressing the poison-gland, a deep yellow-coloured viscid fluid exuded. I collected a few drops of this, and inoculated a drop of it into the thigh of the fowl. The bird sickened and died in about three hours, with much the same symptoms as in cobra-poisoning; the blood of the fowl coagulated firmly after death. It would appear from this, that although the snake be deprived of its fangs, the glands still retain the power of secreting poison, but that it was altered in appearance and properties I think very probable.

I have just received a living specimen from Rangoon, nine feet six inches in length. It is of a light-olive colour in front, but dark towards the tail, with the bands as above described. It seems sluggish and indisposed to attack; when roused it hisses, and slightly expands the hood, raising its head some inches from the ground. A living Passerita mycterizans was put in the cage, but it has not touched it; a dog was also placed in the cage with it, but it could not be made to strike. In short, it seemed disinclined to be troubled, and as though it wished to be let alone. It is very powerful, and the snake-man seemed disinclined to handle it without other professional aid, as he was alone.[1]

The dilatable neck is not altogether peculiar to the Najidæ, but it is better marked in them than in any other snake. The Tropidonotus macropthalmus, an innocuous colubrine snake, which attains a length of thirty-nine inches according to Gunther, and is found in Khasya and Sikkim up to 4000 feet, has this anatomical peculiarity. It is known by its large eye and dilatable neck; the scales, Gunther says, "show an arrangement very similar to that of the cobra, for which it is frequently taken. All the specimens I have seen show unmistakable signs that their captors considered it best to kill them from a distance, aud to inflict a death-wound as near to the head as possible."

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[1] He did so subsequently without difficulty, making a man hold the tail, whilst he managed the head.

It is of "brown, or blackish brown above, uniform or with a dorsal series of reddish brown spots; neck with an indistinct arrow-shaped mark; anterior part of the belly with large quadrangular blackish brown spots; posterior part and lower side of the tail more or less clouded with brown.

"Young specimens have indistinct square dark spots on the back, arranged in quincunx, and a bright yellow collar broadly edged with black."

The natives say almost every snake is poisonous, and they give this character to the lizards as well.

The fabulous Biscopra varanus is believed to be as deadly as Cleopatra's asp; whilst the Touktai platidactylus, Gecko, of Burmah, has got an equally evil repute among the Burmese, and with as little reason. The fact is, that though some of the Sauria may be able to bite hard, they are all perfectly innocent as to venom. There is no such thing as a lizard of any kind with a poison-gland connected with a fang, and, however positively it may be affirmed, it may be as positively denied that any lizard is venomous.

BUNGARUS.

In this genus there are only two Indian species to be described. They are both common, and one of them, the Bungarus cæruleus or krait, is probably, next to the cobra, the most destructive snake to human life in India, though not actually so venomous as some others. The name is of vernacular origin, Bungarum pamah being the native term for the typical species, B. fasciatus, on the Coromandel Coast.

Gunther says of this genus, that "all the species occur on the continent of India; they are extremely closely allied to one another, so that it is sometimes difficult to distinguish species from varieties." I only know of two species that occur in the peninsula of Hindostan, the B. fasciatus and B. cæruleus, and these are so extremely unlike that it is impossible to conceive how they could ever be mistaken for each other.

Gunther certainly describes two other species: B. Ceylonicus, which somewhat resembles B. fasciatus, and B. semifasciatus, which somewhat resembles B. cæruleus; but as they are not found in India, the first being Cingalese and the second Chinese, I do not include them in my description. The large black or deep blue and yellow banded bungarus or sankni is, to an ordinary observer, totally different to the smaller and dark-coloured one, or krait, however much they may be alike in more essential characters. Another species of some naturalists, "Bungarus flaviceps," is placed by Gunther in another genus, of which it is the only representative, Megœrophis. This is placed by some authorities among the bungarums, and is very nearly allied to them. It is not found in India, but in Borneo, Java, Sumatra, and Penang, where it attains the length of six feet or more.

Gunther gives the following general description of the genus:—

"Body rather elongate; tail comparatively short; head more or less dilated, depressed, with broad rounded muzzle scarcely distinct from the neck, which is not dilatable; eye small, with round pupil; nostril between two nasals; loreal none; rostral shield broader than high, reaching to upper surface of snout; anterior frontals half the size of the posterior, vertical, five-sided; occipitals tapering behind; nostrils rather wide, between two nasals; seven upper labials, the third and fourth entering the orbit; one præ, two post oculars; scales smooth, moderately imbricate, disposed in oblique rows forming fifteen longitudinal series round the body: those of the vertebral series are very broad, hexagonal; ventrals between 200 and 300; anal and sub-caudals entire; scales without apical groove; maxillary bone with a fang in front, a second small simple tooth at some distance behind the fang."

The bungarums are diurnal terrestrial snakes, but like others they generally prefer the shade to the sunshine. They are found in the open country, grass and low jungle and fields. They live in holes in the ground, sometimes down among the roots of trees, extending to a considerable depth. They are not frequently seen in inhabited places, though they do at times find their way into native huts and houses. I killed a very large one in Rangoon, many years ago, that got into a hut full of dhoolie-bearers at the field hospital during the last Burmese war. They feed on small animals, snakes, frogs, toads, lizards, and they are very poisonous; but owing to the shortness of the fang, which is much smaller than that of the cobra, their bite is less dangerous, and excision being more practicable, treatment may be useful, and recoveries more numerous. Bites from the B. fasciatus are comparatively rare; those of the krait, B. cæruleus, are very common, and the police returns show a large mortality among the rural population therefrom.

The bungarus is not particularly aggressive, and tries to escape when discovered, but if attacked it retaliates fiercely, and its bite is very dangerous. The B. fasciatus lies coiled in curves, and when disturbed jerks itself out like a spring, but without extending its whole length of body.

The first species to be described is the Bungarus fasciatus or sankni, Bungarum pamah, according to Russell, of the Coromandel Coast, Rajsamp of some natives.

Bungarus annularis. Schleg. Daud.
,, fasciatus. Cantor.
Pseudo boa fasciata. Schneid.

This bungarus grows to a great size—Gunther says, four feet; but it has been found over six feet. I killed one in Rangoon many years ago, over five feet in length. Mason says it grows to six or eight feet. A specimen now in the Indian Museum is 58⅜ inches long, 4⅝ in circumference. It is very remarkable in its coloration, being composed of a series of black or steel-blue and bright gamboge yellow rings. There is a peculiar metallic lustre on the skin, which is very beautiful. Its tongue is flesh-coloured; lips and throat gamboge-coloured. It is tolerably common in Bengal and in Southern India, as well as Burmah, and it is also known in the North-West, where it is sometimes called "koclia krait." Its bite is very dangerous, but the police returns do not show that it causes many deaths; probably because it is not so much in the way of being met with as the cobra or krait. Its fangs are, relatively to those of the cobra, very small, and its bite in dogs causes death much slower than the cobra's bite. It is much less valued by the snake-men than the cobra, as it does not erect its head, nor is it amenable to their tuition. Dogs bitten by B. fasciatus died at various periods from 4 hours 28 minutes to 10 days.

Dr P. Russell has figured it in his great work on Indian Serpents, and in describing it he notices what is very striking, the trigonal shape of its body, the sharp dorsal ridge and declining sides. Gunther's definition of it is as follows:—"The first temporal shield is scarcely longer than high; ventral 200 to 233; sub-caudals 32 to 36. Body with alternate broad black and yellowish rings, extending across the belly. There are from twenty-five to thirty-three of these black rings round the trunk; the first is the broadest, and produced into a triangular process, the point of which rests on the vertical shield. Head black anteriorly, and on the sides separated from the triangular process by a yellow V-like mark; lower parts and throat uniform yellow. The hexagonal vertebral shields, and the hard, blunt, and almost bony end of the tail, with which some natives think the snake can sting, are very characteristic."

BUNGARUS CÆRULEUS.

This is the krait of India, and, next to the cobra, is the most destructive to human life. It is figured by Russell in his great work, and is called by him *Gedi paragoodoo*. It has a variety of synonymes:—

Pseudo boa cærulea. Schneider.
Boa krait. Williams.
Boa lineata. Shaw.
Bungarus cæruleus. Daud.
" lividus. Cantor.
" candidus. Cantor.
" arcuatus. Dum. and Bib.
" lineatus. Gunther.

This snake is described by Gunther as follows:—"The post-temporal shield is considerably longer than high. Ventrals 201-221. Sub-caudals 38-56. Lower parts uniform white. Upper parts bluish or brownish black, uniform, or with more or less numerous, very narrow white cross streaks, not quite as broad as a scale, and generally radiating from a white vertebral spot; no collar." I would add that the lower part, the ventral and surface, is sometimes, as in a specimen from the Indian Museum, Calcutta, now before me, of a dark livid colour, or of a yellow tinge, and that the light-coloured bands are broader than a scale, uniting with the general light colour of the ventral surface.

Gunther describes three varieties:—

"1. Upper parts uniform blackish brown. B. lividus from Assam —Cantor. In young specimens, the head is white, with a black line between the occipitals.

"2. A vertebral series of equidistant small white spots, from which narrow transverse streaks proceed.

"3. Upper parts with narrow white streaks arranged in pairs. B. arcuatus.—Dum. and Bib. The coloration of the dark parts varies from a deep, almost steel-blue black, to a chocolate brown. Tongue white, iris black. This species of bungarus is common all over India; it seems to be more destructive to life in the Upper Provinces than in Lower Bengal. The fangs are much smaller than those of the cobra, and its poison is not so rapid in its action, which, with the comparative smallness of the wound, gives greater hope of cure; but it is, as I have said, very dangerous and destructive, as shown by the police returns."

It grows to a considerable size; the one before me, from the Indian Museum, measures 47⅜ inches in length, and 2⅝ in circumference. Dr P. Russell gives 29 inches as the length, but it certainly attains a much larger size than this; Gunther says, 54 inches. The trunk is of nearly equal thickness from the neck to within four or five inches of the tail. The scales in the dorsal ridge are large and hexagonal. Dr Russell says that this snake was sent to him from Masulipatam, under the name of Cobra monil. Gunther says that Europeans in the peninsula of India give the same name, Cobra monil, to the Daboia Russelli or Tic-polonga.

It seems to be common all over India. I am not aware if it be found in the Himalaya. It is found in the fields, grassy plains, rice khets, low scrubby jungle, and among debris of wood or buildings. It sometimes insinuates itself into houses, in the verandah, bath-rooms, on the ledges of doors or jhilmils, bookcases, cupboards, etc., and in such a situation it is not unfrequently the cause of fatal accident. I know of an instance where, after a night's dâk in a palanquin, a lady, in taking out her things on arriving at her destination, found a krait coiled up under her pillow; it had been her travelling companion all night.

The krait may be mistaken for Lycodon aulicus, an innocent snake, the colouring and general appearance being in many cases very similar. The least examination of the mouth would detect the difference, but at first sight they are much alike, and are often mistaken, the lycodon suffering for its resemblance to its poisonous fac-simile.

XENURELAPS.

There is only one species as yet known of this genus, and Gunther says there is only one specimen of it preserved, and that is in the Museum of the University of Oxford. It is 15⅞ inches long, the tail measuring 1⅛ inch. This specimen came from Cherra Poonjee, in the Khasyah Hills: the only habitat given by Gunther.

It is very closely allied to and resembles a bungarus. Gunther gives the following definitions of the genus:—

"Body sub-cylindrical, long and slender; belly rounded; head short, sub-trigonal, with rounded snout, not distinct from the neck, which is not dilatable; tail short. The shields of the head normal, but the loreal is absent; nostrils lateral, between two shields; eye small, with round pupil; one præ, two post oculars; scales smooth, not much imbricate, in fifteen rows, those of the vertebral series enlarged, hexagonal; anal entire; sub-caudals bifid; maxillary with a grooved fang in front, and with a small smooth tooth behind."

The single known species is,—

Xenurelaps bungaroides. Gunther.
Elaps bungaroides. Cantor.

Gunther's definition of the species is "very similar in general habits to a bungarus. Shields of the upper surface of the head normal, the occipitals somewhat tapering behind; rostral as broad as high; nostril open, round; loreal none, the præ-orbital being in immediate contact with the post-nasal; two post-oculars; seven upper labials, the third and fourth entering the orbit; temporals 1 + 2 + 3, the anterior in contact with both post-oculars. Six lower labials; two pairs of short chin shields, the anterior in contact with three lower labials. Scales in fifteen series, those of the vertebral series enlarged, hexagonal; ventrals 237; anal entire; sub-caudals 46; upper parts black, with narrow white angular transverse lines, the angle of which is pointed forward: these lines are more distinct in front than behind; there are about forty-eight on the trunk. The lower part of the rostral shield white; a white line across the snout, before the eyes; two interrupted divergent white lines commence on the vertical shield, each descending to the side of the neck; another band descends from behind the eye to the fifth and sixth labial; lower parts whitish, with irregular blackish cross bands."

I have been unable to collect any information about this snake; it is not in the Indian Museum.

Dr Cantor describes it as "black-blue above, with white arrow-shaped stripes; beneath alternately white and black blue."

It is called Elaps bungaroides from its resemblance to B. cæruleus or the krait.

In habits and properties, as in appearance, it most probably resembles the B. cæruleus. Information being much needed about the snake, it is to be hoped that naturalists on the frontiers will endeavour to procure specimens and such information as to its habits, as will throw light on the subject.

CALLOPHIS.

This genus has several species in India; they are all venomous, though from the shortness of the fangs, and as they are generally of small size, it is probable that a fatal result would not be produced by their bite in man. The poison is virulent, nevertheless, and fowls bitten by some of the species succumbed in from one to three hours. The known Indian species are:—

Callophis intestinalis.
„ Macclellandii.
„ anularis.
„ trimaculatus.
„ nigrescens.
„ cerasinus.

They are all more or less distinguished by the presence of a bright colour on the more sombre hue of the general surface of the body.

They are sluggish, apparently defective both in sight and hearing, for they allow themselves to be approached with little sign of fear. They are not aggressive, and bite reluctantly; but if irritated, they can be made to bite, and the poison proves fatal to fowls.

They are ground snakes, and are slow and sluggish in their movements. They seem to prefer hilly to level country, and they live chiefly on snakes. Gunther says, the Calamariæ, an innocent family that they much resemble in appearance, are their principal food.

Gunther's description of them is as follows:—"Body sub-cylindrical, very long and slender; belly rounded; head short, obtuse, with broad snout, not distinct from the neck, which is not dilatable; tail short. The shields of the head normal, but the loreal is absent. Nostril wide, lateral between two shields; eye small, with round pupil; one præ, two post oculars. Temporals in a single longitudinal series; six, seven, or eight upper liabials, the third and fourth entering the orbit. Scales smooth, not much imbricate, in thirteen rows; those of the vertebral series not enlarged. Subcaudals bifid; maxillary with a grooved fang in front, without other teeth behind.

"The Callophides are very similar to one another; their body is cylindrical, of nearly the same width throughout, and much elongate; the number of ventral shields is almost always exceeding 200. The head is of moderate length, slightly depressed, not distinct from the neck, with broad rounded snout. The nostril is lateral, rather narrow, situated between two shields; eye small, with round pupil; cleft of the mouth of moderate width, not much extensible. The shields on the upper side of the head normal; the occipitals somewhat elongate; loreal absent. The single præ-ocular forms a suture with the hinder nasal, and extends to the upper surface of the head, but does not reach the vertical, which is comparatively narrow. Two post-oculars in contact with the single anterior temporal. The number of upper labials does not exceed eight; generally there are less than eight, the third and fourth entering the orbit. Scales invariably in thirteen rows, smooth, polished, not much imbricate. Tail short and tapering, with bifid sub-caudals."

CALLOPHIS INTESTINALIS.

This species is found in Central India (Malwah), according to Gunther. The only specimen in the Indian Museum in Calcutta is one marked from Singapore, under the synonyme of Elaps fasciata, Cantor. The Proceedings of the Zoological Society, part vii., 1839, p. 34, gives the following description of it:—"Pale reddish brown above, with a bright yellow dorsal line, with black serrated margins; in the tail three black bands; the abdominal surface whitish yellow, enclosed on each side by a black line." Habitat, Singapore. Its synonymes are:—

Elaps furcatus. Schlegel. Schneider.
Aspis intestinalis. Laur. Syn. Amphib.
Maticora lineata. Gray.
Elaps intestinalis. Cantor.
Callophis intestinalis. Gunther.

Gunther describes the Malwah variety as follows, which somewhat differs from Cantor:—

"Head light brown above, yellowish below, spotted with black on the sides; a vermilion black-edged band runs from the occiput to the top of the tail; a buff-coloured band, with an upper and lower border, runs along the joining edges of the two outer series of scales; the upper black border is as broad as the stripe of reddish gray ground colour at the side of the back. Belly with alternate pale citrine and black cross bands, the latter colour occupying three or four ventral shields together, whilst the former rarely occupies more than two; tail with three black rings, which, however, are sometimes absent."

Upper labials six; ventral shields 223-271; sub-caudals 24-26. It attains to a length of 2 feet, the tail measuring 1½ inch.

"At a meeting of the Asiatic Society on the 6th April 1870, Dr Stoliczka exhibited a specimen of the rare Callophis intestinalis obtained from Upper Burmah. The species has the poison-glands extending from the head to about one-third of the total length of the body, lying free in the cavity of the anterior part, and causing the heart to be much further removed backward than is generally the case in other species of snakes."—*Pro. Asiatic Soc.*, April 1870.

CALLOPHIS MACLELLANDII.

Synonymes:

Elaps Macclellandii. Reints. Cal. Journal Nat. Hist.
„ personatus. Blyth. Journal Asiatic Society.
„ univirgatus. Gunther's Colubrine Snakes.
Callophis univirgata. Smith. Proc. Zool. Soc.
„ Macclellandii. Do. do.

Gunther describes three varieties of this snake:—

"1. Belly with uninterrupted black cross bands, alternately limited to the belly, or extending up the sides of the body, so as to cover scales of the four outer rows, and give the appearance of a lateral series of large black spots. The three last cross bands of the trunk form complete rings, crossing the vertebral line; tail with three other black rings. This specimen is 26⅛ inches long; tail 2⅛ inches; ventral 196-218; sub-caudals 27-34.

"2. Belly with quadrangular black spots rather irregularly disposed, and not extending up the sides; tail without black rings. This specimen is 18 inches long; tail 1½ inch; ventrals 224; sub-caudals 25.

"3. The cross bands reach entirely across the back, forming rings, from twenty-two to twenty-eight in number, on black vertebral line, which, however, is indicated by isolated small spots. Ventrals 196-218; sub-caudals 27-34." Varieties 1 and 2 are from Nepaul and Darjeeling; 3 from Assam.

There is a good specimen of this snake in the Indian Museum, but it has been bleached by the action of the spirit; it is from Assam. Museum No. 123.

Gunther's description of the species, generally, is as follows:—

"Head and neck black above, with a yellow cross band behind the eyes. Body and tail reddish brown, generally with a black vertebral hue from the nape to the top of the tail. Belly yellowish, with black cross bands or quadrangular black spots.

"Upper labials seven, temporal small, 1 + 1 + 12, anal bifid."

CALLOPHIS ANULARIS.

Gunther says of it:—"Head and neck black above, with a broad yellow cross band behind the eyes. Body and tail reddish brown, without longitudinal band, but with forty narrow, equidistant, black, white-edged rings; each of them is about as broad as a scale in the back (those round the tail being broader), and occupies one ventral shield on the belly. Belly yellowish, with a black cross band in the middle between the rings; each of these cross bands occupies a ventral shield, so that about every third ventral is black. Upper labials six, temporals small, 1 + 1 + 1, the first very narrow, the third the largest; ventrals 208; anal bifid; sub-caudals 33."

Gunther says:—"I have examined only one specimen of this species, remarkable on account of its singular coloration. It is marked 'India,' and is 19 inches long, the tail measuring 2 inches."

CALLOPHIS TRIMACULATUS.

Synonymes:

Vipera trimaculat. Dand. Rept.
Elaps trimaculatus. Merr. Tent.
Coluber melanurus. Shaw, Zool.
Callophis trimaculatus. Gunther. Proc. Zool. Soc.

"Light bay above; an indistinct line formed by minute brown dots, along each series of scales. The upper side of the head, the neck, and a spot below the eye, black; snout with some irregular small yellow spots; a yellow spot in each temporal shield; a subtriangular yellow spot on the middle of the neck; the back of the neck edged with yellow behind. Tail marked with black below, and with two black rings, each of which is variegated with yellow. Belly uniform white (red during life); upper labials six; temporals elongated, 1 + 1, equal in size; ventrals 258-274; anal bifid; subcaudals 35."

Russell has figured this snake in his "Indian Serpents," fig. viii. vol. 1. Gunther says he has received one from Bengal, agreeing with Russell's typical specimen. The snake is very small, being only 12 inches long, tail measuring $\frac{7}{8}$ths of an inch.

Museum No. 124. There are specimens in the Indian Museum described as Elaps melanurus, Cantor, from Rangoon. These were presented by Dr Fayrer in the year 1853. They are bleached and altered in colour by the action of the spirit.

CALLOPHIS NIGRESCENS.

Callophis nigrescens. Gunther.
„ concinnus. Beddome.
„ Malabaricus. Jerdon. Beddome.

Gunther's description is as follows:—

"Upper parts dark blackish ash or black, the lower uniform red; upper part of the head symmetrically marbled with black; a black spot below the eye; another descends from the occipital to the angle of the mouth; a black horseshoe-like collar, with the convexity directed forwards; a narrow black vertebral line, and slightly edged with yellowish, runs from the collar to the tip of the tail; a series of small ovate black spots indistinctly edged with whitish colouring on each side of the trunk, disappearing posteriorly; tail coloured like body, without black rings. In old examples, the black dorsal stripe and the black lateral spots disappear, and only the whitish edge of the latter remain, forming indistinct longitudinal lines.

"Vertical shields elongate; upper labials seven; temporal 1 + 1, the anterior twice the size of the posterior; ventrals 232-247; anal entire, in one specimen bifid; sub-caudals 33-42.

"I have examined three specimens of this species, one of which was sent by Captain R. H. Beddome from the Neilgherries. The largest is 4 feet long, the tail measuring 5 inches."

CALLOPHIS CERASINUS.

Major Beddome describes a species from the Wynaad, Malabar forests, to 3000 feet high.

"Rostral slightly produced back between the anterior frontals; anterior frontals only half the size of the posterior, the latter touch the orbit; no loreal and no anti-ocular; nostril between two nasals; seven upper labials, third, fourth, and fifth very high; third and fourth enter the orbit; one small post-ocular; vertical six-sided elongated, pointed behind; superciliary small; occipitals large, elongated, pointed behind, with a pair of large temporals on each side; anal entire; back purplish brown, with a shining nacreous lustre, with transverse broad irregular-shaped black bands extending to the top of the tail (about forty) at nearly equal distances, and which are continued (though not broad) underneath the belly and tail, but do not quite meet; sides (two or two and a half of lowest row of scales) and belly of a bright cherry colour; head black in front, neck with the fifth, sixth, and seventh labials, and a portion of the occipitals cherry-coloured; length 21½ inches, of which the tail is 2 inches; circumference 1⅛ inch; sub-caudals 13; abdominals 228.

Part Second.

REVIEWS.

On the Present State of Therapeutics, with some Suggestions for placing it upon a more Scientific Basis. By JAMES ROGERS, M.D., formerly Physician to the British Legation and to the Abouchoff Hospital, St Petersburg. London: John Churchill and Sons. Edinburgh: Maclachlan and Stewart: 1870.

Observations on Therapeutics and Disease. By DONALD CAMPBELL BLACK, M.D., Glasgow. London: John Churchill & Sons: 1870.

THE late Professor George Wilson was wont to say, that suppose all the sciences related to medicine were represented by a group of boys playing at leap-frog, therapeutics would figure as a very lazy boy, whom no compulsion could prevail upon to take his leap.

Convinced of the substantial truth underlying this playful allusion, we hail with pleasure every attempt at really advancing this all-important branch of medical science. The author of the present work has this laudable intention, and sets, we think, to his task with great earnestness, fearlessness, candour, and calmness. Not to speak of his introductory observations regarding the meaning of terms, etc., we think the chapters in which he proves the absence of the slightest evidence of *homœopathic*, or, as it is sometimes called, *specific action*, in quinine, sulphur, and mercury, are very valuable, more particularly at the present time, when there seems among the orthodox members of the profession in some quarters to be not a little tendency to give a limited amount of credence to the so-called specific virtues of mercury.

In regard to infinitesimal doses, Dr Rogers proves to a demonstration that the higher dilutions can contain nothing whatever of the original medicine; thus, he says—"Mayerhofer estimates the number of particles of arsenic or tin in a grain of the third trituration of arsenic or tin at 115,200,000; and as gold is reduced with more difficulty than these drugs to a state of fine comminution, we may estimate the particles of it in a grain of the third trituration at the same number. But, to get a more convenient sum for calculation, let us nearly double the estimated amount and fix it at 200,000,000. If a grain of this trituration of gold be mixed with ninety-nine drops of diluted alcohol, a drop of the fourth dilution will contain only 2,000,000 particles of gold. If the dilutions be continued in the same manner up to the seventh, it is evident this last will contain only two particles of it." Now, it is sufficiently obvious that the eighth and subsequent dilutions cannot contain a single particle of the metal. It will scarcely do for homœopathists to assert that they no longer believe in or administer infinitesimal doses, seeing that the evidence to which they proudly appeal as having established the excellency of their system, was in great part obtained by the use of dilutions often as high as the 40th or even 200th.

Apropos of this subject, the author suggests, in a foot-note, that the most probable origin of the doctrine of infinitesimal doses was a dispute between Hahnemann and the apothecaries, when the latter, for trade reasons, objected to him mixing his medicines himself.

The second part of the work is most likely to create criticism among non-homœopathic practitioners. In it the author discusses the comparative results of the homœopathic and non-homœopathic treatment in regard to acute rheumatism, intermittent fever, typhus, cholera, and pneumonia, and, with the single exception of intermittent fever, concludes that the homœopathic treatment yields results superior to, or at least equal to, the ordinary treatment; and also that the more of expectancy is exercised in the treatment of these diseases, the more nearly they approach the favourable percentage of cures obtained by homœopathy. From this deduction the author argues that, seeing it is impossible to attribute the cures effected by homœopathists to the action of homœopathic drugs, which can only be looked upon as inert, and since, on the other hand, we cannot deny the favourable results of homœopathy—the records of Fleischman and other homœopathists being honestly kept, and the observations of the cases fairly and openly made (facts which the author himself, moreover, had opportunities of verifying while watching the homœopathic treatment in Vienna)—it follows that the histories of cures by homœopathy may be beneficially utilized by being accepted as the natural histories of the diseases so treated. This we consider to be the chief point of merit in the work, and we think it is difficult to gainsay the truth of the argument.

The author also insists with great earnestness upon the importance of obtaining a thorough experimental knowledge of the action of various drugs upon the healthy subject, maintaining that, though the *mode* of action may be different in health from what it is in disease, the *direction* of action is the same in both conditions. We think this proposal strikes at the roots of a gigantic error in regard to therapeutics, which consists in looking upon the physiological and therapeutical actions of remedies as disconnected.

In conclusion, the author—1. Insists upon the necessity of a more correct knowledge of physiology, pathology, and chemistry, as a basis of therapeutics. 2. Recommends a more accurate knowledge of the natural history of diseases. 3. Makes some suggestions for ascertaining more correctly the curative properties of drugs.

On the whole, we regard the book as an able and valuable one, though we doubt very much whether it shall meet with much favour either from homœopathists or non-homœopathists. The plain-spoken scepticism of the author is calculated to offend both parties equally; and, for ourselves, the statistics notwithstanding, we do not think Dr Rogers gives sufficient credit to the beneficial effects of medicines, even when administered with the amount of light, scanty though it be, which we at present possess. We think, moreover, that he has barely done justice to therapeutics by selecting, as his examples of the effects of drugs, diseases which, with the exception of intermittent fever and cholera, are self-limited, and consequently little amenable to any treatment other than restorative or expectant.

We should also have wished to see a more logical arrangement of the work, and less of the limping character it derives by being made up of chapters in a great measure independent of one another.

But, undoubtedly, the book exhibits much thought, great grasp of mind, an enlightened liberality of opinion, rare freedom from the chains of preconceived notions, and a profound love of truth.

It seems calculated to be of considerable service in stimulating medical observers to strive after the attainment of a more accurate and more scientific system of therapeutics. We cordially recommend it to the attention of our readers, convinced that it will well repay perusal.

The author of "Observations on Therapeutics and Disease," after a brief introduction, composed chiefly of a statement of the more common facts in physiology, states the following propositions:—1. The harmonious performance of histogenesis and histolysis constitutes health. 2. A class of diseases devitalizes by a preponderance of the histolytic function over assimilation. 3. To an insufficient oxidation of effete tissues, or inadequate elimination, a class of diseases *sui generis* may be ascribed. 4. Apart from those, many diseases are due to irritation specifically or non-specifically produced.

Under the head of diseases due to histolytic excess, the author comprehends all diseases usually included under the generic name of fever. Under the class of diseases due to defective oxidation, he places gout, rheumatism, oxaluria, neuralgia, calculous diseases, scrofula, diabetes, and probably scarlatina, diphtheria, cancrum oris, etc., etc. Under the head of diseases due to irritation, he includes the various inflammations, specific and non-specific.

Having thus, as he supposes, reduced all diseases to this degree of simplicity, the author argues that the treatment of disease ought to be directed either towards limiting the results of excessive oxidation, producing oxidation when it is deficient, or allaying irritation when that is present.

To facilitate the working out of this idea, Dr Black proposes a fourfold classification of medicines into—1. Chemical; 2. Physiological; 3. Mechanical; 4. Catalytic; and occupies the rest of his pamphlet in illustrating the mode in which he proposes to apply curative agents according to his physiological and pathological principles.

The book shows that its author possesses considerable speculative ability, and that he entertains a healthy hatred of everything savouring of fanciful refinement in diagnosis, as well as of all those who, in the pursuit of new medicines and theories, neglect to exhaust the curative capacities of known drugs. But we do not think either the pathology or therapeutics of disease is so clear or so easy as the author seems to believe; and we see no reason to admire his classification of medicines, or to believe that it is in any way superior to many other classifications that have been already proposed. The truth is, they are all exceedingly defective, and, in the present state of our knowledge, must necessarily be so. We think, also, that far too much of the earlier part of the pamphlet is taken up with quotations from well-known authors, which seem to us scarcely necessary to the argument of the pamphlet, inasmuch as the quotations are chiefly facts in physiology and pathology which are universally admitted. It also appears to us that, though it is certainly necessary to have a complete knowledge of the actions of those drugs whose efficacy we have already well tested, yet, as the practice of medicine is still so very much empirical, we ought rather to encourage than frown upon attempts to improve our means of combating disease. We also fail to see that the author's views on antiseptic treatment are correct, and we think him singularly unhappy in selecting the antiseptic treatment of inflammations as illustrating his views, inasmuch as it seems to us the great mass of facts are dead against the inference he means to draw. The book, though very crude, however, is in some respects suggestive, and is written with considerable vigour.

Lehrbuch der Geburtshülfe mit Einschluss der Pathologie der Schwangerschaft und des Wochenbettes. Von Dr KARL SCHROEDER, o. ö. Prof. der Geburtshülfe, und Director der Entbindungsanstalt an der Universität Erlangen.

Text-book of Midwifery, including the Pathology of Pregnancy and Childbed. By Dr KARL SCHROEDER, Ordinary Professor of Midwifery, and Director of the Lying-in Institution at the University of Erlangen.

GERMANY, with its numerous universities, produces many more text-books of midwifery than any other country. This it might be expected to do, for several reasons; but we know no good reason why it should produce better text-books than any other country, as it does. Dr Schroeder is already known to us by works which he has published, and which have won for him attentive readers. He now produces an excellent *lehrbuch,* which we recommend as giving the latest view of the state of the science and practice of midwifery. Dr Schroeder is well acquainted with British authors, and has made good use of the labours of our numerous enthusiastic obstetricians. We commend Schroeder's work, especially because it contains the pathology of childbed, a whole class of highly important subjects, which is generally omitted from German text-books. German students will thank Schroeder for this improvement and novelty. It will be a permanent one, we have no doubt. The laborious monographs on the subject, such as that of Dr Winckel of Rostock, will not be the less perused, as the sketch by Schroeder will form for the student an introduction to such works as that of Winckel.

Did the work of Schroeder possess any remarkable features of novelty, we would call our readers' attention to them specially. It does not do so. But it deserves very high commendation as a book fitted, as it is intended, to give the student the main outlines of the science of midwifery as it is in 1870.

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1. *Renal Diseases: A Clinical Guide to their Diagnosis and Treatment.* By W. R. BASHAM, M.D., etc. London: Churchill: 1870. Pp. 244.
2. *The Pathology of Bright's Disease.* By W. B. LEWIS, M.D. New York: Turner and Mignard: 1869. Pp. 29.

3. *A Guide to the Examination of the Urine.* By J. WICKHAM LEGG, M.D. London: H. K. Lewis: 1870. Pp. 88. Second Edition.
4. *On the Diagnostic Value of the Corpuscular Blood Elements in the Urine of Bright's Disease.* By JOSEPH G. RICHARDSON, M.D. Philadelphia: 1870. Pp. 15.

DR BASHAM'S work is written as a "clinical guide" to the diagnosis and treatment of renal diseases, and quite as much perhaps as an exposition of his own peculiar views of their pathology. To gain any advance in medicine, it is perfectly necessary that every observer should put forth his own views; but, to constitute an advance in science, these views must be shown to be both new and true, as well as an improvement on what has gone before. We hardly think that Dr Basham's views come up to this standard.

Dr Basham includes all renal diseases under the two headings of acute and chronic nephritis, and, that we may not mistake his meaning, he gives as their synonymes—"inflammation of the kidneys" and "chronic albuminuria." Yet under the former he includes nephralgia, tuberculosis, and carcinoma of the kidneys, the albuminuria of diphtheria, enteric fever, etc., affections of which tuberculosis and carcinoma alone could by any stretch of imagination be said to have any foundation in inflammation, and that of so slender a character as certainly does not entitle them to be placed under the head of acute nephritic affections. Further, Dr Basham regards the obstructive albuminuria of pregnancy as an acute nephritis, but the obstructive albuminuria of heart disease as a chronic nephritis; both forms of disease may be associated with acute nephritic affections, but there is certainly no reason to believe that the one process is essentially nephritic, in the sense of inflammatory, more than the other.

Under the head of chronic albuminuria, Dr Basham includes the large white kidney, which he calls the "large granular fatty kidney," the amyloid kidney, and the cirrhotic kidney, which he terms the granular contracted kidney; but to these principal and well-known forms he adds a fourth, which he dignifies by the name of "the atrophic, contracted, nodular, gouty kidney;" inasmuch, however, as this is simply the cirrhotic kidney occurring in a gouty constitution, we see no reason for making such a subdivision, especially as, according to Dr Basham's own statement, the cirrhotic and the contracted gouty kidney both frequently have gout as an antecedent, the state of the blood inducing the parenchymatous degeneration in the one case, the starting-point in the other being "the kidney or kidneys themselves" (p. 161)—irrespective of the blood, or how? We cannot congratulate Dr Basham on his classification; it is confused, confusing, unpathological, and unclinical, not making up for its want of strict pathological accuracy by affording us any aid in our clinical studies.

In his pathology, Dr Basham leans to Dr George Johnson, to whose name he adds those of Dr Grainger Stewart and Dr Dickinson, because of their devotion to the microscopic details of the morbid anatomy of kidney diseases; while he regards great perplexity and confusion as having been introduced into the study of these diseases by the German school, from their too great attention to the physical character of the kidneys. A better acquaintance with the writings of the two latter gentlemen would have taught him that much if not all of their excellence is due to their promulgation of the views of the despised German school, which, except in Dr Basham's own imagination, has not been restricted to the determination of physical characteristics, but has made great advances in the microscopic morbid anatomy of the kidneys, though not always to the advantage of Dr George Johnson, whose views, perhaps, we may without disparagement now regard as somewhat obsolete.

The practical portion of the work contains nothing new, nor even enough of what is old to render the work at all a serviceable guide to the practitioner in the many embarrassing cases which continually present themselves. A single glance at the treatment of acute nephritis, whether idiopathic or post-scarlatinal, will bear us out in this assertion. There is not a word of the danger from sudden pulmonary œdema, of the mode of preventing this, of the absolute necessity for tapping in many cases, not only where ascites is present, but even for anasarca alone, in many cases of which, from the changes produced by the sudden shifting of the effusion, or the great discomfort from the enormous distention of the extremities, it is paramountly called for. Nay, we believe that throughout the whole work there is not a more powerful hydragogue cathartic mentioned, except in the most cursory manner, than the compound powder of jalap. Truly Dr Basham's practice has been a fortunate one, if stronger hydragogues were only exceptionally required, or mechanical removal of the fluid effused never called for.

About one-fourth of the whole work is taken up with an account of the physical and chemical properties of the urine as aids to diagnosis. In this there is nothing new. The whole chapter is too diffuse for mere clinical requirements, and not full enough for consultation in any difficulty. Even in so simple and nowadays so important a matter as melano-urine, we are merely told that "it is said" that the internal use of tar and creosote may produce it; we may infer, but we are not told, that carbolic acid may also produce it; and, above all, no test is given by which we can distinguish between the melano-urine of creosote and carbolic acid from that produced by other causes, though at the present day this is a matter of some importance. On the whole, then, we think ourselves fairly justified in stating that Dr Basham's work is not sufficiently clear in its pathology to be useful to a student, nor by any means so full and copious in its details of treatment as to be of any great value to a practitioner; at the best, it can only act as a remembrancer in the mere A B C work of ordinary routine.

In Dr Lewis's brochure we have an admirable and succinct account of the pathology of Bright's disease, accompanied by several well-executed woodcuts, which, though wanting in diagrammatic clearness, are yet evidently enough accurate when criticised by a discriminating eye; and as it is only to such he appeals, this, perhaps, is all that ought to be expected. Dr Lewis commences with a very meagre and cursory account of the discovery of the connexion between albuminuria and structural disease of the kidney, in which Cotunnius obtains much more than his due; and then he suddenly expands into the broad general statement that albuminuria is a much broader term than Bright's disease, and that, apart from the coexistence of blood and pus in the urine, and apart also from organic lesion of the kidney, there are many sufferers from albuminuria in whom the only visible change is congestion, and possibly a slight and not necessarily general cloudiness of the renal epithelium. Of this he only gives two cases of children dying under somewhat obscure symptoms, and presenting albuminuria and tube-casts before death, with nothing but renal congestion to be found after death. We conceive that Dr Lewis has done well in directing attention to this point. Modern renal pathology takes its starting-point from Virchow, and his three forms seem to engross the whole attention of modern medical men; but there were great men before Agamemnon, and many great pathologists before Virchow, and it is a loss to science that their labours should be ignored. We quite agree with Dr Lewis that albuminuria is a much broader term than "Bright's diseases," as Dr Stewart puts it; nay more, we think "Bright's diseases" in the plural a tautological term, for Bright only discovered one disease, if we may call it such: he discovered the connexion of albuminuria with diseased kidney, a generic disease including many—shall we say—or only three forms. We are quite of opinion, then, that for any truly clinical history of such affection the term albuminuria is the only unobjectionable one, and the only one which must compel the author to treat of Bright's disease on a broad and philosophic basis. Of late we have had quite enough of this disease from a pathological point of view; what we require now is a truly clinical treatise. Albumen in the urine may be temporary or permanent, and may depend on many different causes; but the great points of clinical importance, prophylaxis and prognosis, can only be properly considered by taking a wide survey of all the modes in which albuminuria is produced—not by confining ourselves to its organic causes, but by going back to its ultimate physiological cause, and ascertaining how in each case this may have been brought about. It is true that in this respect Dr Lewis's treatise is only suggestive, but it is most pregnantly suggestive, and cannot fail to produce good fruit. We regret that we cannot agree with him, when he states that he thinks it an error to describe a stage of atrophy as following inflammatory disease; we perfectly agree, however, that it is clinical observation mainly that must decide this point, which the microscope alone never can. What is desiderated now is more copious and more accurate clinical observations, coupled with careful microscopic observations, not only of the kidney, but also of the other organs of the body, in every case; which alone can enable us in many cases to decide whether the atrophy is primary or secondary.

Dr Legg's little work, which has already deservedly reached a second edition, is an admirable guide to the clinical examination of the urine. It is not perfect, however: it states that urates are distinguished from "other deposits" by appearing after the urine cools, when we know that oxalates are often not only deposited, but even formed subsequent to the cooling of the urine. It takes no notice of the delicate carbolic acid test for albumen; it does not allude to the absence of the chlorides in fevers; it makes no allusion to the test for the earthy phosphates, apart from the alkaline phosphates; and its figures both of the urinary crystalline deposits and the tube-casts are very coarse. Still it is a most excellent and useful work, and will be made still more useful by the alterations mentioned; and by the addition of tables for calculating the amount of solids in the urine at different densities, for discovering the nature of urinary deposits by chemical reagents, for the microscopical chemical examination of urinary deposits, for the testing of urinary calculi by heat, acids, alkalies, etc., as also by the table of the average quantity and composition of the healthy urine in twenty-four hours. Such tables are of the greatest use to clinical clerks, and a series of them, clearly printed, would form a most useful adjunct to the side-room of any clinical ward. Heller's mode of testing the urine is also a most comprehensive one, and deserves to be exhibited in every clinical work of the kind; while his table of the relations of the urinary ingredients in their plus or minus forms to the possible diseases present is equally comprehensive, and deserving of being tested.

Dr Richardson's pamphlet, reprinted from the American Journal of the Medical Sciences for January 1870, directs attention to the importance of according a due value to the presence of the corpuscular blood-elements in the urine in a diagnostic point of view, and gives several cases in which this importance is shown. We fully homologate Dr Richardson's views, and have seen many cases which efficiently support them. When the history of albuminuria comes to be written from a clinical point of view, the diagnosis of the corpuscular blood-element will assuredly assume no mean importance.

INFORMATION REGARDING MEDICAL EDUCATION AND EXAMINATIONS.

THE following are the Regulations of the General Medical Council on the subject of Medical Education and Examinations:—

I.—PRELIMINARY EXAMINATIONS.

1. That Testimonials of Proficiency, granted by the National Educational Bodies according to the subjoined list, may be accepted, the Council reserving the right to add to, or take from, the list.

List of Examining Bodies whose Examinations fulfil the Conditions of the Medical Council, as regards Preliminary Education.

(1.) UNIVERSITIES OF THE UNITED KINGDOM.

Oxford.—Examination for a Degree of Arts. Responsions, Moderations, Local Examinations (Senior), Certificate to include Latin and Mathematics.

Cambridge.—Examination for a Degree in Arts. Previous Examination. Local Examinations (Senior), Certificate to include Latin and Mathematics.

Durham.—Examination for a Degree in Arts. Examination for Students in their second and first years. Registration Examination for Medical Students. Local Examinations (Senior), Certificate to include Latin and Mathematics.

London.—Examination for a Degree in Arts. Matriculation Examination.

Aberdeen, Edinburgh, Glasgow, and St Andrews.—Examination for a Degree in Arts. Preliminary Examination for Graduation in Medicine or Surgery. Examination of (Senior) Candidates for Honorary Certificates under the Local Examinations of the University of Edinburgh.

Dublin.—Examination for a Degree in Arts. Entrance Examination.

Queen's University (Ireland).—Examination for a Degree in Arts. Entrance Examination. Examination for the Diploma of Licentiate in Arts. Previous Examination for B.A. Degree.

(2.) OTHER BODIES NAMED IN SCHEDULE (A) TO THE MEDICAL ACT.

Royal College of Surgeons of England.—Examination conducted under the Superintendence of the College of Surgeons, by the Board of Examiners of the Royal College of Preceptors.

The Society of Apothecaries of London.—Examination in Arts.

Royal Colleges of Physicians and Surgeons, Edinburgh.—Preliminary Examination in General Education, conducted by a Board appointed by these two Colleges combined.

Faculty of Physicians and Surgeons of Glasgow.—Preliminary examination in General Literature.

Royal College of Surgeons in Ireland.—Preliminary Examination, Certificate to include Mathematics.

Apothecaries' Hall of Ireland.—Preliminary Examination in General Education.

(3.) EXAMINING BODIES, IN THE UNITED KINGDOM, NOT INCLUDED IN SCHEDULE (A) TO THE MEDICAL ACT.

Royal College of Preceptors.—Examination for a First Class Certificate.

(4.) COLONIAL AND FOREIGN UNIVERSITIES AND COLLEGES.

Universities of Calcutta, Madras, and Bombay.—Entrance Examination, Certificate to include Latin.

M'Gill College, Montreal.—Matriculation Examination.

University of Toronto, King's College, Toronto, Queen's College, Kingston, Victoria College, Upper Canada.—Matriculation Examination.

King's College, Nova Scotia.—Matriculation Examination. Responsions.

University of Fredericton, New Brunswick.—Matriculation Examination.

University of Melbourne.—Matriculation Examination, Certificate to include all the subjects required by the General Medical Council.

University of Sydney.—Matriculation Examination.

Codrington College, Barbadoes.—1. English Certificate for Students of two years' standing, specifying the subjects of Examination. 2. Latin Certificate, or "Testamur."

Tasmanian Council of Education.—Examination for the Degree of Associate of Arts, Certificate to include Latin and Mathematics.

Christ's College, Canterbury, New Zealand.—Voluntary Examination, Certificate to include all the subjects required by the General Medical Council.

N.B.—A Degree in Arts of any University of the United Kingdom or of the Colonies, or of such other Universities as may be from time to time recognised by the General Medical Council, will be considered a sufficient testimonial of proficiency.

2. That it be recommended to the Licensing Boards not to accept the Certificate of Proficiency in General (preliminary) Education from any of the Bodies, the names of which are contained in the list annually circulated, unless such Certificate testify that the Student to whom it has been granted has been examined in :—1. English Language, including Grammar and Composition.[1] 2. Arithmetic, including Vulgar and Decimal Fractions. Algebra, including Simple Equations. 3. Geometry—First two books of Euclid. 4. Latin, including Translation and Grammar.

And in one of the following optional subjects :—Greek. French. German. Natural Philosophy, including Mechanics, Hydrostatics, and Pneumatics.

3. That students who cannot produce any of the Testimonials referred to in the first Recommendation be required to pass an Examination in Arts, established by any of the Bodies named in Schedule (A) to the Medical Act, and approved by the General Medical Council.

4. That the Examination in General Education be eventually left entirely to the Examining Boards of the National Educational Bodies recognised by the Medical Council.

5. That after 1868, all Examinations be removed from the list of those recognised which do not in all respects come up to the minimum which the Council laid down in 1866.

6. That the various Educational and Licensing Bodies be requested to transmit to the Registrar of the General Council, Returns, embodying any alterations which they may from time to time introduce into their Courses of General Study and Examinations which qualify for the Registration of Medical Students; and that a copy of such Returns be sent by the Registrar, as soon as convenient, to each Member of the General Council.

7. That Certificates of Proficiency, to be received from all Bodies legally authorized to examine in General Education in Great Britain and Ireland, and from the several Licensing Bodies enumerated in Schedule (A) to the Medical Act in Great Britain and Ireland, shall bear evidence that the Candidates have been examined and approved in at least the above subjects.

8. That in the case of Certificates received from similar Educational and Licensing Bodies in other parts of the Empire and Foreign countries, satisfactory evidence shall be given to the Medical Council, or Branch Councils, that such Certificates are equivalent to those recognised in the United Kingdom.

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[1] The General Medical Council will not consider any Examination in English sufficient that does not fully test the ability of the Candidate,—*1st*, To write a few sentences in correct English on a given theme, attention being paid to spelling and punctuation as well as to composition. *2d*, To write a portion of an English author to dictation. *3d*, To explain the grammatical construction of one or two sentences. *4th*, To point out the grammatical errors in a sentence ungrammatically composed, and to explain their nature. *5th*, To give the derivation and definition of a few English words in common use.

9. That it shall be delegated to the Executive Committee to prepare annually and lay before the Council for recognition a list of Examining Bodies, whose Examinations shall fulfil the conditions of the Medical Council as regards Preliminary Education.

II. Registration of Medical Students.

1. Every Medical Student shall be registered in the manner prescribed by the General Medical Council.

2. No Medical Student shall be registered until he has passed a Preliminary Examination, as required by the General Medical Council.

3. The commencement of the course of Professional Study recognised by any of the Qualifying Bodies, shall not be reckoned as dating earlier than fifteen days before the date of Registration.

4. The Registration of Medical Students shall be placed under the charge of the Branch Registrars.

5. Each of the Branch Registrars shall keep a Register of Medical Students according to the subjoined Form :—

Form for the Registration of Medical Students.

Date of Registration.	Name.	Preliminary Examination and Date.	Place of Medical Study.

6. Every person desirous of being registered as a Medical Student shall apply to the Branch Registrar of the division of the United Kingdom in which he is residing, according to the annexed Form, which may be had on application to the several Qualifying Bodies, Medical Schools, and Hospitals; and shall produce or forward to the Branch Registrar a Certificate of his having passed a Preliminary Examination, as required by the General Medical Council, and a statement of his place of Medical Study.

Form of Application for Registration as a Medical Student.

I hereby apply to be registered as a Student in Medicine, in conformity with the Regulations of the General Council of Medical Education and Registration of the United Kingdom, for which purpose I submit the following particulars :—

Name of Applicant. (To be written in words at length.)		Preliminary Examination.	Date of Preliminary Examination.	Place of Medical Study.
Surname.	Christian Name.			

Applicant's Signature ———.
Address ————————.
Date of Application ———.

To the Registrar of the Branch Council for ———.

N.B.—The above Form of Application, duly and legibly filled up, must be forwarded to the Registrar, post free, and be accompanied by a Certificate of the Applicant's having passed a Preliminary Examination, as required by the General Medical Council; and a statement of his place of Medical Study.

The Certificate of Examination must testify that the Student has been examined in,—1. English Language, including Grammar and Composition; 2. Arithmetic, including Vulgar and Decimal Fractions; Algebra, including Simple Equations; 3. Geometry—First two books of Euclid; 4. Latin, including Translation and Grammar. And in one of the following optional subjects:—Greek; French; German; Natural Philosophy, including Mechanics, Hydrostatics, and Pneumatics.

7. The Branch Registrar shall enter the Applicant's name and other particulars in the Students' Register, and shall give him a Certificate of such Registration.

8. Each of the Branch Registrars shall supply to the several Qualifying Bodies, Medical Schools, and Hospitals, in that part of the United Kingdom of which he is Registrar, a sufficient number of blank Forms of Application for the Registration of Medical Students.

9. The several Branch Councils shall have power to admit special exceptions to the foregoing regulations as to Registration, for reasons which shall appear to them satisfactory.

10. A copy of the Register of Medical Students, prepared by each of the Branch Registrars, shall be transmitted, on or before the 31st December in each year, to the Registrar of the General Council, who shall, as soon as possible thereafter, prepare and print, under the direction of the Executive Committee, an Alphabetical List of all Students registered in the preceding year, and supply copies of such authorized list to each of the Bodies enumerated in Schedule (A) to the Medical Acts, and through the Branch Registrars to the several Medical Schools and Hospitals.

11. The several Qualifying Bodies are recommended not to admit, after October 1870, to the final Examination for a Qualification under the Medical Acts, any Candidate (not exempted from Registration) whose name had not been entered in the Medical Students' Register at least four years previously.

In the case of Candidates from other than Schools of the United Kingdom, the Branch Councils shall have power to admit exceptions to this recommendation.

The Branch Councils are desired to take means to make these regulations known to the Medical Students at the various Medical Schools.

III.—AGE FOR LICENSE TO PRACTISE.

1. That the age of twenty-one be the earliest age at which a Candidate for any Professional License shall be admitted to his final Examination; that the age shall, in all instances, be duly certified; and that a Return of any exceptions to this recommendation allowed by the Licensing Bodies, together with the reasons for such exceptions, be transmitted to the Branch Council of that part of the United Kingdom in which they have been granted.

2. That no License be obtained at an earlier period than after the expiration of forty-eight months subsequent to the Registration of the Candidate as a Medical Student.

IV.—PROFESSIONAL EDUCATION.

1. That the course of Professional Study required for a License shall comprehend attendance during not less than four Winter Sessions, or three Winter and two Summer Sessions, at a School recognised by any of the Licensing Bodies mentioned in Schedule (A) to the Medical Act.

2. That the following are the subjects without a knowledge of which no Candidate should be allowed to obtain a qualification entitling him to be registered:—1. Anatomy. 2. General Anatomy. 3. Physiology. 4. Chem-

istry. 5. Materia Medica. 6. Practical Pharmacy. 7. Medicine. 8. Surgery. 9. Midwifery. 10. Forensic Medicine.

Chemistry should include a knowledge of the principles of Chemistry, and of those details of the science which bear on the study of Medicine.

Medicine and Surgery should include a knowledge of Systematic and Clinical Medicine and Surgery, and also of Morbid Anatomy.

3. That it be recommended to the several Licensing Bodies that the courses of instruction required by them be framed in such a manner as to secure a due share of attention, both to preparatory branches and to those more strictly connected with the Practice of Medicine and Surgery; and that it be suggested accordingly to these Bodies, that their regulations should be such as to prevent attendance upon Lectures from interfering with Hospital and Clinical Study.

4. That the Council will view with approbation any encouragement held out by the Licensing Bodies to Students to prosecute the study of the Natural Sciences before they engage in studies of a strictly professional character.

V.—PROFESSIONAL EXAMINATION.

1. That it is desirable that the different Licensing Bodies should combine their Examinations, when this is practicable, so as to secure that the knowledge of every Practitioner whose name appears on the Register shall have been tested in all the subjects of Professional Education which the Council has determined to be essential, viz.:—1. Anatomy. 2. General Anatomy. 3. Physiology. 4. Chemistry. 5. Materia Medica. 6. Practical Pharmacy. 7. Medicine. 8. Surgery. 9. Midwifery. 10. Forensic Medicine.

2. That those Licensing Bodies which have not already done so, be requested to furnish a statement of the dates of their Examinations and of the modes in which such Examinations are conducted, whether by written, oral, or practical Examination, and of the length of time a Candidate is under Examination in each or all of these ways; and that the Registrar transmit these Reports to the Members of the Council, in order that they may be taken into consideration at the next meeting of the several Branch Councils.

3. That the Professional Examination for any License be divided into two parts; the first embracing the primary or fundamental branches directly connected with the practice of Medicine and Surgery; that the former be not undergone till after the close of the Winter Session of the second year of professional study; and the latter, or final Examination, not till after the close of the prescribed period of professional study.

4. That the Examination in Physics, Botany, and Natural History may be undergone at an earlier period than the first Professional Examination.

5. That the Professional Examinations be conducted both in writing and orally; and that they be practical in all branches in which they admit of being so.

6. That not less than two Examiners, or one Examiner with an Assessor, should be present at every Oral Examination.

7. That the Oral Examinations should be so far public as to be open at least to the Medical and Surgical Graduates, or members of the Examining Body.

8. That the questions to be answered in writing should be so numerous, and embrace such a variety of the details of each subject, as may adequately test the proficiency of the Candidate; and that they should be submitted to the whole body of Examiners for consideration and revision, if desirable, before being proposed to the Candidates.

9. That the written answers should be submitted to more than one of the Examiners.

10. That excellence in one or more subjects should not be allowed to compensate for failure in others.

11. That if a Candidate be rejected for failure in any one subject, he should be re-examined in all.

12. That Examiners should only be elected for definite periods, with power of re-appointment.

13. That the Professional Examinations be held by the several Licensing Bodies, except in special cases, at stated periods, to be publicly notified.

14. That returns from the Licensing Bodies in Schedule (A) be made annually, on the 1st of January, and in the subjoined form, to the General Medical Council, stating the number and names of the Candidates who have passed their first as well as their second and third Examinations, and the number of those who have been rejected at the first and second and third Examinations respectively; and that the Registrar forward a sufficient number of forms, with a notice for their being returned in due time.

Table of Return of Professional Examinations, and their Results.

Licensing Bodies.	Qualifications.	No. Passed.			No. Rejected.		
		1st Exam.	2d Exam.	3d Exam.	1st Exam.	2d Exam.	3d Exam.

15. That for the future the Licensing Bodies, which do not already do so, distinguish separately in their Returns the names and numbers of Candidates examined, and the numbers of those passed and rejected at the examinations for each of the qualifications conferred.

16. That it is not desirable that any University of the United Kingdom should confer any degree in Medicine or Surgery, whether that of Bachelor, Doctor, or Master, upon Candidates who have not graduated in Arts, or passed all the Examinations required for the Bachelorship in Arts, or the Examinations equivalent to those required for a degree in Arts.

REMARKS ON MEDICAL STUDY.

THE foregoing Regulations of the General Medical Council are so full and explicit that the Medical Student can be at no loss as to what is required of him. It is necessary for him, however, also carefully to study the Regulations of the particular Boards before which he intends to present himself, as, though uniformity of education has of late years made great advances, it is not yet obligatory, and trifling variations unattended to in time, may produce serious consequences at an after period of his career.

The institution of an examination in elementary knowledge previous to admission to the study of Medicine, is certainly a most important step in the right direction. Our Preliminary Examination, however, as at present constituted, hardly goes far enough: we are contented to secure a sufficient knowledge of language to ensure correct spelling and grammatical construction,—

things necessary enough, if we wish our prescriptions or descriptions to be understood, but of comparatively little importance in securing the true advance of Medical Science. To attain that, it is of at least equal importance to be able to reason correctly; and therefore we think that an early opportunity ought to be taken of adding Logic, as one of the obligatory branches of Preliminary Medical Education; and we cannot too strongly recommend its study to all who wish to be permanently useful in advancing Medical Science. It is only by strictly following the laws of sound logic that any science has ever been advanced, and it has been by a neglect of these that the domain of Medicine has been invaded by a mass of flimsy hypotheses and incorrect deductions, which have in some cases led to serious individual results, and have tended in all to postpone that period when the science of therapeutics—for that, after all, is the great aim of all Medical Science—shall advance with certain steps within those limits of variation to which all sciences having the variable basis of living action are liable.

While arguing thus on the importance to the Student of an acquaintance with the nature and rules of evidence and of the laws of thought, we must not be understood as undervaluing the importance of careful and correct observation,—quite the contrary; but while a logical induction can only be based upon correct observations, we still believe that no observations can be accurate which have not been carefully corrected by the strict rules of evidence. A knowledge of logic, therefore, or the procedure of our own minds in the investigation of truth, is quite as applicable in the collection and ascertaining of facts as in regulating our ratiocination upon these facts; and it is from a deficiency of this knowledge that some of our seemingly best men have failed of the success they have endeavoured to attain, just as it is that, by an often unconscious exercise of it, others have succeeded and done good service in their day and generation.

A great deal has of late been said and written about the place and position of systematic lectures. Too often, nowadays, these are made mere crams, concise oral statements of what may be regarded as answers to a pass-examination; and Students encourage this style of lecturing by flocking to those who supply it. This we conceive to be a great mistake: systematic lectures ought not to be mere oral compendiums of practice, but ought to be concise statements of the history and philosophy of the subject of which they treat. When they shall have attained this, there will no longer be any question as to their utility, but they will be regarded as the fittest preparation for that practical tuition which it has been the object of all recent legislation on Medical Education to elevate to its proper position as the fittest preparation for the active duties of life, and to which the recent institution of Clinical Examinations in Medicine and Surgery, as an important part of the final examination, of necessity, and very properly, compels the Student to pay proper attention. Judiciously carried out, these Clinical Examinations are by far the most certain test of a Student's qualifications for the duties he is about to enter upon: they are the best incentives to Clinical study; they are equally a spur to the Clinical teacher, knowing, as he does, that the quality of the Clinical instruction must be a main element in estimating the value of any Medical School.

On the best method of pursuing Medical Studies, our counsel may be condensed in a few words. Four years are short enough for acquiring the extended information at present required by the Licensing Boards, even as a *minimum.* The Student therefore cannot too soon begin in earnest. During the session, he should lay out a plan of his hours of lectures, practical work, and private study, with sufficient intervals of healthful recreation; and should carry out this plan with unswerving steadiness, ever remembering that steady work, and a habit of looking at all sides of a question or fact, is worth any amount of so-called talent and desultory exertion. The late Sir James Simpson was regarded by the contemporaries of his student days as a mere plodder; but his plodding made him a Baronet, and left them nowhere. During vacation, time may be properly spent in practical work, as assistant to a medical practitioner, or in reading, either to complete past work or in anticipation of the subjects of study for next session. To Students who wish to attain to high honours or position in the profession, we should recommend five years, instead of four, for professional study; or, at all events, they would find great advantage from an acquaintance with Natural History, Natural Philosophy, Chemistry, and Botany, before commencing their strictly Medical studies. This object might be attained by attending classes on these subjects during the summer, previous to the winter session which begins their Medical curriculum.

To all Students we should strongly recommend to join, after their first year, some of the debating societies which are now found in connexion with most medical schools, and of which the Royal Medical Society of Edinburgh, with its spacious rooms and large library, is an excellent example. The mental vigour derived from independent thought and free discussion, and the genial influences of friendship for which these societies afford opportunity, are of great value in the education of the Medical Student, and contribute, in no small degree, to a successful career in after life.

The following pages contain a tabular abstract of the regulations of the various Licensing Boards, as well as a list of the Hospitals, Dispensaries, etc., attached to our Scotch Medical Schools; also the regulations for the Army, Indian, and Navy Medical Services. The space at our disposal does not allow of more detailed information. But, in point of fact, the regulations of all Licensing Boards now correspond much more closely than they used to do, and the regulations of the General Medical Council afford a key to the general requirements of all of them. For special information, application should always be made to the Secretaries of the Licensing Boards; or, in the case of the Universities, recourse may be had to the published Calendars.

The *Preliminary Examinations* are usually held before the commencement, and at the end, of the Winter Session,—viz., in October, March, or April—sometimes also at the end of the Summer Session. The Professional Examinations in Universities are usually after the Winter and during the Summer Sessions; in Edinburgh, however, the first professional is held in October as well as April. The other Licensing Boards' examinations are held at various periods throughout the year. Special examinations, under circumstances of urgency, can be held at almost any time; but they, of course, entail considerable addition to the expense.

COURSE OF STUDY REQUIRED BY THE VARIOUS BOARDS OF THE UNITED KINGDOM.

	Age.	Anatomy.	Dissections.	Chemistry.	Practical Chemistry.	Materia Medica.	Physiology or Institutes of Medicine.	Surgery.	Practice of Medicine.	Midwifery.	Medical Jurisprudence.	Pathology or Morbid Anatomy.	Botany.	Natural History.	Practical Pharmacy.	Clinical Surgery.	Clinical Medicine.	Hospital Attendance.	Practical Midwifery.	Dispensary or Out-door Practice.	Vaccination.
	Years.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	
Edinburgh University, M.B. & C.M., . .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	3 mo., or 6 cas.	6	
University of Glasgow, M.B. & C.M., . .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
University of Aberdeen, M.B. & C.M., .	21	12	6	6	3	6	6	6	6	6	3		3		3	6	6	24	do.	6	
University of St Andrews, M.D., . . .	22	12	12	6	3	3	6	6	6	3	3		3	3		6	6	24			
London University, M.B., ...	21	6	12	6	1 crs	1 crs	6	6	6	1 crs	1 crs				1 crs	2 yrs.	2 yrs.	4 yrs.	20 cas.	6	
University of Durham, M.B. & M.D. . .																					
Dublin University, M.B., ...		6		6	3 ms	6	6	6	6	6	3		3			9	9	18			
„ „ Surgical Diploma, .		18	18	6	3	6	18	18	6	6	3		3			27	27	27			
The Queen's University of Ireland, M.D.,		12	12	6	3	6	12	6	6	6	3		3	3	3 mos.	12	12	24	3 mo.		
Royal College of Physicians, London, .	21	12	12	6	3	3	12	6	12	3	3	6	3		3		9	24	20 cas.		
Royal College of Physicians, Edinburgh,	21	6	6	6	3	3	6	6	6	3	3	3	3		3	3	6	24	6 cases		
King and Queen's Col. of Phys. Ireland, .	21	6	12	6	6	6	6	6	6	6	6		6			6	21	27	6 mo.		
Royal College of Surgeons, London,* . .	21	12	12	6		3	12*	12	6	3					3	27*	9*	33			Cert.
Royal College of Surgeons, Dublin, . .	21	18	18	6	6	3	18	18	6	3	3					18	9	27			
Royal College of Surgeons, Edinburgh, .	21	12	12	6	3	3	3	6 or 12	6	3	3	3			3	6 or 12	6	24	6 cas.	6	Cert.
Faculty of Phys. and Surgeons, Glasgow,	21	12	12	6	3	3	3	6 or 12	6	3	3				3	6 or 12	6	24	6 cas.		
For Double Qualification by Royal College of Phys. and Surg. of Edinburgh,	21	12	12	6	3	3	3	6 or 12	6 or 12	3	3	3	3		3	6 or 12	6 or 12	24	6 cas.	6	Cert.
For Double Qualification by Royal College Phys. Edinburgh, and Faculty of Physicians and Surgeons of Glasgow,	21	12	12	6	3	3	6	6 or 12	6	3	3	3			3	6 or 12	12	24	6 cas.		
Apothecaries' Hall, England, ...	21	12	6	6	3	3	6		12	3	3	6	3		Appr.		27	27	20 cas.		9 mo.
„ Ireland, ...	21	6	12	6	3	3	6	6	6	6	3		3		Appr.	9	18	27	20 cas.		

English Poor-Law Board.—Candidates for the appointment of Medical Officer are required to be registered under the Medical Act, and must be legally qualified to practise both Medicine and Surgery, in virtue of Diplomas or Licenses granted by competent legal authority in England, Scotland, or Ireland.

Information respecting exceptions to these regulations under various circumstances, and other details as to the order in which, according to some Licensing Bodies, the courses should be taken out, etc., must be obtained by consulting the published Charts of the Colleges, etc. Students should apply to the Secretary to each Board which they intend to pass for a detailed copy of its Regulations.

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* Students from the Schools of Scotland are admitted to examination at the Royal College of Surgeons of England, if they have followed the course of study required by the regulations of the Royal College of Surgeons of Edinburgh. Students in Scotland, therefore, are not required to attend more than one course of Physiology, six months Clinical Surgery, six months Clinical Medicine, and twenty-four months Hospital.

MEDICAL SCHOOLS OF SCOTLAND, 1870–71.

WINTER SESSION.

Subjects.	University of Edinburgh.	Surgeons' Hall, Edinburgh.	University of Glasgow.	Anderson's University, Glasgow.	University of Aberdeen.	University of St Andrews.
Anatomy, Systematic and Practical, with Demonstrations.	Professor Turner.	Dr Handyside.	Dr A. Thomson.	Dr George Buchanan.	Professor Struthers.	...
Physiology, or Institutes of Medicine.*	Dr Bennett.	Dr Gamgee.	Dr A. Buchanan.	Dr E. Watson.	Dr Ogilvie.	Dr Oswald Bell.
Chemistry, and Practical Chemistry.	Dr C. Brown.	Dr Macadam.	Dr T. Anderson.	Dr Thorpe.	Professor Brazier.	Dr F. Heddle.
Materia Medica and Therapeutics.	Dr Christison.	In Summer.	Dr Cowan.	Dr Morton.	In Summer.	...
Practice of Medicine.	Dr Laycock.	Dr Haldane.	Dr Gairdner.	Dr M'Call Anderson.	Dr Macrobin.	...
Surgery.	Professor Spence.	Dr Watson.† Dr Jos. Bell. Mr Annandale.	Dr Macleod.	Dr Dunlop.	Professor Pirrie.	...
Midwifery.	Professor Simpson.	Drs Keiller † and J. M. Duncan.	Dr Leishman.	In Summer.	Dr Inglis.	...
Natural Philosophy.	Professor Tait.	Mr Lees.	Sir Wm. Thomson.	Mr Herschel.	Professor Thomson.	Professor Fischer.
Natural History.	Professor Allman.	Dr Nicholson.	Dr Young.	...	Professor Nicol.	...
General Pathology.	Dr Sanders.	Dr Wyllie.	...	...	...	Dr Rodger.
Clinical Medicine.	Drs Bennett, Laycock, Maclagan, and Sanders.	Drs Haldane,‡ Balfour, G. Stewart, and J. M. Duncan.	The Physicians of the Royal Infirmary.		Drs Harvey and Smith.	...
Clinical Surgery.	Professor Lister.	Dr Gillespie.	The Surgeons of the Royal Infirmary.		Drs Pirrie, Kerr, and Fiddes.	...

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* This course is equivalent to that given under the name of General Anatomy and Physiology in the English Schools. Special schedules are issued by the London Boards for their Scotch students, which should always be inquired for.

† These are not conjoint courses, but separate ones by the gentlemen named.

‡ This is a joint course.

MEDICAL SCHOOLS OF SCOTLAND, 1870.

SUMMER SESSION.

Subjects.	University of Edinburgh.	Surgeons' Hall, Edinburgh.	University of Glasgow.	Anderson's University, Glasgow.	University of Aberdeen.
Practical Anatomy and Demonstrations.	Professor Turner.	Dr Handyside.	Dr A. Thomson.	Dr George Buchanan.	Professor Struthers.
Botany.	Dr Balfour.	...	Dr A. Dickson.	Mr Hennedy.	Dr Dickie.
Materia Medica.	...	Dr Fraser.	...	...	Dr Harvey.
Midwifery.	...	Drs Keiller * and Macdonald.	...	Dr Wilson.	...
Medical Jurisprudence.	Dr Maclagan.†	Dr Littlejohn.†	Dr Rainy.†	Dr P. A. Simpson.	Dr Ogston.†
Comparative Anatomy.	Professor Turner.	Dr Handyside.	...	...	Mr Nicol.
Histology.	Drs Bennett * and Sanders.	Dr Wyllie.	...	...	Dr Struthers.
Practical Chemistry.	Dr Crum Brown.	Dr Macadam.	Dr T. Anderson.	Dr Thorpe.	Prof. Brazier.
Natural Philosophy.	...	Mr Lees.	...	...	...
Natural History.	...	Dr Nicholson.	Dr Young.	...	Prof. Nicol.
Clinical Medicine.	Drs Bennett, Laycock, Maclagan, and Sanders.	Drs Haldane,‡ Balfour, G. Stewart, and J. M. Duncan.	The Physicians of the Royal Infirmary.		Drs Harvey and Smith.
Clinical Surgery.	Prof. Lister.	Dr P. H. Watson.	The Surgeons of the Royal Infirmary.		Drs Kerr, Pirrie, and Fiddes.

Operative Surgery is taught during the Summer by Drs Watson, Miller, Chiene, and Mr Annandale. Instruction in Vaccination is also given at the Royal Public Dispensary, Edinburgh, on Wednesdays and Saturdays at 12, by Dr Husband; at the Faculty Hall, Glasgow, on Mondays at 12, by Dr Dunlop; and at the Royal Infirmary, Glasgow, on Mondays and Thursdays at 12 o'clock, by Dr Tannahill.

* These are not conjoint courses, but separate ones by the gentlemen named.

† Drs Rainy and Ogston deliver their courses only in Winter. Dr Littlejohn gives courses during both the Winter and Summer Sessions. Dr Maclagan also lectures during both Summer and Winter. The Winter Course is chiefly intended for law students, but is open to medical students also.

‡ This is a joint course.

⁂ For additional Summer Courses on special subjects, see the Prospectus of each School.

LIST OF HOSPITALS, DISPENSARIES, ETC., IN CONNEXION WITH THE MEDICAL SCHOOLS OF SCOTLAND.

EDINBURGH.

ROYAL INFIRMARY, including LOCK HOSPITAL. Upwards of 560 Beds. Visits daily from 12 till 2 P.M. Physicians—Drs Bennett, Laycock, Maclagan, and Sanders, Professors of Clinical Medicine; Drs D. R. Haldane, G. W. Balfour, and Grainger Stewart, Clinical Lecturers; Dr J. Matthews Duncan (on Diseases of Women). Assistant Physicians—Drs Claud Muirhead and T. R. Fraser. Pathologist, Dr Pettigrew.

Surgeons—Mr Lister, Professor of Clinical Surgery; Professor Spence; Dr Gillespie, Clinical Lecturer; Dr P. H. Watson, and Mr Annandale. Assistant Surgeons, Drs J. Bell and J. Duncan. Consulting Surgeon, Dr Dunsmure. Ophthalmic Surgeons, Mr Walker and Dr Argyll Robertson. Dental Surgeon, Dr John Smith.

CONVALESCENT HOUSE, Corstorphine. Visiting Medical Officer, Dr Bell.

CHALMERS HOSPITAL FOR THE SICK AND HURT. 24 Beds for medical and surgical patients. Physician, Dr Halliday Douglas; Surgeon, Dr P. H. Watson.

ROYAL MATERNITY HOSPITAL. 36 Beds; 245 in-patients and 336 outpatients annually. Consulting Physician, Dr Moir. Physicians, Drs Keiller, C. Bell, Ziegler, Matthews Duncan, and Professor Simpson. Consulting Surgeon, Dr Dunsmure.

ROYAL HOSPITAL FOR SICK CHILDREN. 60 Beds; average number of outpatients, about 5600. Consulting Physicians, Professor Christison, Dr C. Wilson, and Dr Graham Weir. Consulting Surgeon, Professor Spence. Physicians, Drs Stephenson, R. Peel Ritchie, J. Linton, and A. Gamgee. Extra Physicians, Drs Millar and Brakenridge. Surgeon-Dentist, Dr Smith.

ROYAL PUBLIC DISPENSARY AND VACCINE INSTITUTION. About 12,700 patients annually. Medical Officers, Drs Ritchie, Stephenson, Cairns, Spence, Linton, G. W. Balfour, Sanders, Husband, D. Wilson, Millar, Smart, and Andrew. Physicians-Accoucheurs—Drs Keiller, Matthews Duncan, Stephenson, and Cairns. Superintendent of Vaccination, Dr Husband. Medical Secretary, Dr Millar. Visits daily at 2 P.M. Vaccination on Wednesdays and Saturdays at 12 noon. Apothecary, Mr R. Urquhart.

NEW TOWN DISPENSARY. About 9000 patients annually. Medical Officers, —Drs Dycer, Joseph Bell, A. Dickson, Chiene, Cunynghame, Brakenridge, Affleck, and Cadell. Physicians-Accoucheurs, Drs Dumbreck, Weir, and Angus Macdonald. Superintendent of Vaccination, Dr Affleck. Medical Secretary, Dr Joseph Bell. Visits daily at 2 P.M. Vaccination on Tuesdays and Fridays from 12 to 1.

DISPENSARY FOR SKIN DISEASES, 4 Melbourne Place (George IV. Bridge). Open on Mondays and Thursdays from 2 till 3 o'clock. Surgeon, Mr G. Stevenson Smith.

ROYAL ASYLUM FOR THE INSANE. About 660 patients. Physician, Dr Skae. Lectures and Clinical Visits in summer.

EYE INFIRMARY, 6 Cambridge Street, Lothian Road. Surgeons, Benjamin Bell, Esq., F.R.C.S., and Dr Joseph Bell, F.R.C.S. Open daily at 1 P.M. Average number of patients annually, 900.

EYE DISPENSARY, Cockburn Street. About 2000 patients annually. Surgeons, Mr Walker, Dr Wilson, and Dr Argyll Robertson. Open Mondays, Wednesdays, and Fridays, at 1 P.M. Clinical instruction during the summer session.

EAR DISPENSARY, 54 Cockburn Street. Drs T. Keith and Jackson. Tuesdays at 12. Average, about 20 cases daily.

DENTAL DISPENSARY, Cockburn Street. Consulting Surgeon, Professor Spence. Consulting Physician, Dr Sanders. Dental Surgeons, Dr Orphoot, Mr Hutchins, Dr Roberts, Dr Hogue, Mr Knox Chisholm, Mr Swanson. Assistant Dental Surgeon, Mr Chisholm, Jun. Daily, 9 to 10 A.M. Average number of patients, 4000 per annum.

GLASGOW.

ROYAL INFIRMARY. 583 Beds. Visits daily at 9 A.M. Physicians, Drs W. T. Gairdner, Steven, Perry, M'Laren, M'Call Anderson, and Scott Orr. Physicians to out-patients, Drs P. A. Simpson, Lindsay, Charteris, and Wood Smith.

Surgeons, Drs E. Watson, Dewar, G. H. B. Macleod, George Buchanan, and Morton. To out-patients, Drs Dunlop, Patterson, R. Watson, Smart, and Cameron. Pathologist (vacant). Superintendent, Dr M. Thomas.

LOCK HOSPITAL. 81 Beds. Medical Officers, Drs G. H. B. Macleod and James Dunlop. In-patients, 520.

LYING-IN HOSPITAL AND DISPENSARY. 24 Beds; in-patients, 360; out-patients, 400. Physicians-Accoucheurs, Drs J. G. Wilson and R. D. Tannahill. Consulting Physician (vacant). Consulting Surgeon, Dr George Buchanan. Dispensary Physicians, Drs John Burns, R. T. Paton, G. Miller, and H. Millar.

UNIVERSITY LYING-IN HOSPITAL AND DISPENSARY. In-patients, about 750; out-patients, about 4000. Physicians, Drs Leishman and John Wilson.

ROYAL ASYLUM FOR THE INSANE. About 680 patients. Physician-Superintendent, Dr A. Macintosh.

EYE INFIRMARY. 24 Beds; 132 in-patients; 3139 out-patients annually. Physician, Harry Rainy, M.D. Surgeons, William Brown, M.D., Thomas Reid, M.D. Assistant-Surgeons, Matthew Charteris, M.D., R. Watson, M.D. House Surgeon, Archibald Neilson, L.F.P.S.G. and R.C.P.E.

EAR DISPENSARY. About 400 patients annually. Surgeon, Dr Dewar. Open on Tuesdays, Thursdays, and Saturdays, at 3 P.M.

DISPENSARY FOR SKIN DISEASES. About 1400 patients. Physician, Dr M'Call Anderson. Practical Courses in Diseases of the Skin and Ear, during May, June, and July. The Dispensary is open on Mondays and Wednesdays at 4 P.M., and on Tuesdays for Diseases of the Ear at the same hour.

OPHTHALMIC INSTITUTION. Consulting Physician, Dr Charles Ritchie. Surgeon, Professor Macleod. Physician, Dr J. Adams. Acting Surgeon, Dr J. N. Wolfe. Open daily from 1 to 3 P.M. A Course of Lectures and Clinical Instruction during the winter and summer months.

ABERDEEN.

ROYAL INFIRMARY. Upwards of 300 Beds. Visits daily at 12 o'clock. Physicians, Drs Harvey, Smith, and Beveridge.

Surgeons, Drs Pirrie, Kerr, Fiddes, and A. Ogston. Ophthalmic Surgeon, Dr Davidson. Pathologist, Dr Rodger. Dental Surgeon, Mr Williamson.

GENERAL DISPENSARY, LYING-IN AND VACCINE INSTITUTION. 7000 patients annually. Medical Officers, Drs Angus Fraser, Duncan, and Brown; Messrs Smith, Paterson, and Fraser. Physician-Accoucheur, Dr Inglis Dental Surgeon, Mr De Lessert. Visits daily at 9.30 A.M. Vaccination every Wednesday at 3 P.M.

LUNATIC ASYLUM. Above 300 patients. Consulting Physician, Dr Macrobin. Resident Physician, Dr Robert Jamieson.

EYE INSTITUTION, 60 St Nicholas Street. Surgeon, Dr Davidson. Open daily, except Sunday, at 2.30 P.M. Clinical Instruction on Diseases of the Eye, and the use of the Ophthalmoscope. Average, 600 patients annually.

ARMY MEDICAL DEPARTMENT.

6 WHITEHALL YARD, S.W.

QUALIFICATIONS AND EXAMINATION OF CANDIDATES FOR COMMISSIONS IN THE ARMY MEDICAL SERVICE.

1. Every candidate desirous of presenting himself for admission to the Army Medical Service must be unmarried, and not under 21 nor over 28 years of age. He must produce a Certificate from the District Registrar, in which the date of birth is stated; or, if this cannot be obtained, an affidavit from one of the parents or other near relative, who can attest the date of birth, will be accepted. He must also produce certificates of moral character, one of them from the parochial minister, if possible.

2. The candidate must make a declaration that he labours under no mental or constitutional disease, nor any imperfection or disability that can interfere with the most efficient discharge of the duties of a medical officer in any climate.[1] He must also attest his readiness to engage for general service, and to proceed on foreign service when required to do so.

3. The candidate must be registered under the Medical Act of 1858 as licensed to practise Medicine and Surgery in Great Britain or Ireland.

4. Certificates of registration, character, and age must be lodged at the Army Medical Department at least one week before the candidate appears for examination.

5. Candidates will be examined by the Examining Board in the following subjects:—Anatomy and Physiology; Surgery; Medicine, including Therapeutics, the Diseases of Women and Children, Chemistry and Pharmacy, and a practical knowledge of drugs. (The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of Medical and Surgical patients at the bedside.) The eligibility of each candidate for the Army Medical Service will be determined by the result of the examinations in these subjects only. Candidates who desire it will be examined in Comparative Anatomy, Zoology, Natural Philosophy, Physical Geography, and Botany, with special reference to Materia Medica, and the number of marks gained in these subjects will be added to the total number of marks obtained in the obligatory part of the Examination by candidates who shall have been found qualified for admission, and whose position on the list of successful competitors will thus be improved in proportion to their knowledge of these branches of science.

6. After passing this examination, every candidate will be required to attend one entire course of practical instruction at the Army Medical School on—(1) Hygiene; (2) Clinical and Military Medicine; (3) Clinical and Military Surgery; (4) Pathology of Diseases and Injuries incident to Military Service.

7. At its conclusion, the candidate will be required to pass an examination on the subjects taught in the School. If he give satisfactory evidence of being qualified for the practical duties of an Army Medical Officer, he will be eligible for a commission as assistant-surgeon.

8. During the period of his residence at the Army Medical School each candidate will receive an allowance of 5s. per diem with quarters, or 7s. per diem without quarters, to cover all costs of maintenance; and he will be required to provide himself with uniform (viz., the regulation undress uniform of an assistant-surgeon, but without the sword).

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[1] His physical fitness will be determined by a Board of Medical Officers, who are required to certify that the candidate's vision is sufficiently good to enable him to perform any surgical operation without the aid of glasses. A moderate degree of myopia would not be considered a disqualification, provided it did not necessitate the use of glasses during the performance of operations, and that no organic disease of the eyes existed. Every candidate must also be free from organic disease of other organs, and from constitutional weakness or other disability likely to unfit him for military service in any climate.

9. All candidates will be required to conform to such rules of discipline as the Senate may from time to time enact.

The examinations for admission to the service are held at the London University, Burlington Gardens, on the second Monday in February and August respectively, and on the following days.

EXTRACTS FROM THE ROYAL WARRANT (APRIL 1, 1867) FOR THE PAY AND NON-EFFECTIVE PAY OF MEDICAL OFFICERS.

The daily rates of pay of the officers of the Medical branch of the Hospital Department of our Army shall be as follows:—

Medical Staff.—Daily pay: director-general, special; inspector-general £2, after twenty-five years' service £2, 5s., after thirty years' service £2, 7s., after thirty-five years' service £2, 10s.; deputy inspector-general £1, 10s., after twenty-five years' service £1, 12s., after thirty years' service £1, 15s., after thirty-five years' service £1, 17s.; surgeon-major £1, 4s., after twenty-five years' service £1, 7s.; surgeon 17s. 7d., after fifteen years' service 20s.; assistant-surgeon, on appointment 10s., after five years' service 12s. 6d., after ten years' service 15s., after fifteen years' service 17s. 6d. Charge pay: the officer in medical charge of an army in the field, of 10,000 men and upwards, £1 daily; of 5000 men and upwards, 15s. daily; of less than 5000, 10s. daily. Or, in medical charge of a colony where the number of commissioned officers and enlisted men is 1500 and upwards, 5s. daily.

Apothecaries.—Daily pay: apothecaries 9s., after five years' service 10s. 6d., after ten years' service 12s., after fifteen years' service 13s. 6d., after twenty years' service 15s., after twenty-five years' service 16s. 6d., after thirty years' service 18s.

Assistant-surgeons shall, as a general rule, be promoted to the rank of surgeon in the order of their seniority in the service, unless unfit for the discharge of their duties from physical or professional incompetence or misconduct. In cases of distinguished service, however, an assistant-surgeon may be promoted without reference to seniority; and in such cases, the recommendation detailing the services for which the officer is proposed for promotion shall be published in the general orders of the army, and in the *Gazette* in which such promotion shall appear.

A surgeon, after twenty years' service in any rank, shall be styled surgeon-major, but a surgeon of less than twenty years' full-pay service may be promoted to the rank of surgeon-major for distinguished service. The recommendation detailing the services for which the officer is proposed for promotion for distinguished service shall be published in the general orders of the army, and in the *Gazette* in which such promotion shall appear.

A surgeon must have served ten years in our army, with a commission on full pay, of which period two years must have been passed, with the rank of surgeon, in or with a regiment or depôt battalion, before he can be promoted to the rank of deputy inspector-general of hospitals.

All promotion from the rank of surgeon or surgeon-major to that of deputy-inspector, and from the rank of deputy-inspector to that of inspector, shall be given by selection for ability and merit, the selection being made from the whole rank of surgeons, whether styled surgeons or surgeons-major; and the grounds of such selection shall be stated to us in writing, and recorded in the office of our Commander-in-Chief.

A deputy inspector-general of hospitals must have served five years at home, or three abroad, in that rank, before he can be promoted to the rank of inspector-general.

Our Secretary of State for War, in cases of emergency, may shorten the several periods of service above mentioned, as he shall deem expedient for the good of our service.

Good Service Pensions shall be awarded to the most meritorious medical officers of our army, under such regulations as shall be from time to time determined by us, with the advice of our Secretary of State for War. Six of the mo meritorious medical officers of our army shall be named our honorary physicians, and six our honorary surgeons.

Medical officers shall have the right to retire on half-pay after 20 years' service; medical officers of the rank of surgeon-major, surgeon, or assistant-surgeon, shall be placed on the retired list at the age of 55, and all inspectors-general and deputy inspectors-general at the age of 65 years.

Our Secretary of State for War may, when he shall deem it fit, employ officers of the medical branch of our hospital department in sundry situations, at such daily rates of pay, in addition to half-pay, as he shall from time to time determine.

A medical officer who, having voluntarily resigned his commission, has subsequently been permitted to re-enter the army, shall not, except under very special circumstances to be approved by our Secretary of State for War, be allowed to reckon his former service.

An apothecary shall have the right to retire on half-pay after 30 years' good service.

Non-effective Pay.—A medical officer placed on half-pay by reduction of establishment, or on the report of a medical board in consequence of wounds or ill-health caused in and by the discharge of his duties, or on account of age, shall be entitled to half-pay at the following daily rates:—Inspector-general, after thirty years' service, £1, 17s. 6d.; twenty-five years, £1, 13s. 6d.; twenty years, £1, 10s. Deputy inspector-general, after thirty years, £1, 5s. 6d.; twenty-five years, £1, 2s. 6d.; twenty years, £1, 1s. Surgeon-major, after fifteen years, £1; twenty years, 16s. 6d. Surgeon, after fifteen years, 13s. 6d.; ten years, 11s. Assistant-surgeon, after ten years, 10s.; five years, 8s.; under five years, 6s.

The rate of half-pay awarded to officers retiring for their own convenience, after twenty years' service on full-pay, shall not exceed one-half of their full-pay at the time of retirement.

ARMY MEDICAL SCHOOL.

ROYAL VICTORIA HOSPITAL, NETLEY.

President of the Senate.—Sir T. Galbraith Logan, K.C.B., M.D., Director-General of the Army Medical Department.

Members of the Senate.—Sir Ranald Martin, C.B., Physician to the Indian Council; Inspector-General G. S. Beatson, M.D., Principal Medical Officer, Royal Victoria Hospital; Deputy-Inspector-General T. Longmore, C.B., Professor of Military Surgery; Deputy-Inspector-General W. C. Maclean, Professor of Military Medicine; William Aitken, M.D., Professor of Pathology; E. A. Parkes, M.D., F.R.S., Professor of Military Hygiene.

Assistant Professors.—Staff-Surgeon-Major W. A. Mackinnon, C.B., Military Surgery; Staff-Surgeon-Major, W. J. Fyffe, M.D., Military Medicine; Staff-Surgeon F. S. B. F. De Chaumont, M.D., Military Hygiene; and Staff-Assistant-Surgeon V. Wearne, Pathology.

Candidates for Commissions in the Army, and in the Queen's Indian Service, proceed to Netley after passing the Examination at London. At Netley they attend the Medical and Surgical Practice of the Royal Victoria Hospital, and learn the system and arrangements of Military Hospitals. During four months they attend the lectures given by the Professors and Assistant-Professors, and go through a course of practical instruction in the Hygienic Laboratory and Microscopical Room. The lectures and practical instruction are intended to explain the specialties of Military Medical Practice, attention being directed to gunshot and other wounds, surgical arrangements in the field during action and sieges, means of transport, field hospitals, tropical diseases and their means of investigation, service in India and in the various colonies, the sanitary arrangements in peace and war, and the means of carrying out the sanitary regulations. Every opportunity is taken of practising operations on the dead body, and practical points of a like kind.

INDIAN MEDICAL SERVICE.

INDIA OFFICE, WHITEHALL, S.W.

ALL natural-born subjects of Her Majesty between twenty-two and twenty-eight years of age at the date of the examination, and of sound bodily health, may be candidates for the appointment of assistant-surgeon in Her Majesty's Indian Medical Service.

They must subscribe and send in to the Military Secretary, India Office, Westminster, proofs of their qualification similar to those required by the Army Medical Department.

Degrees, diplomas, licenses, and certificates of their registration in accordance with the Medical Act of 1858, must be lodged at the India Office, for examination and registry, at least one fortnight before the candidate appears for examination. The regulations, subjects, and times for examination are the same as for the Army Medical Department. Passage allowance to India on appointment will be given, or a passage provided. When passages are provided on board the Indian troop-ships, a charge for messing will be made at the rate laid down in the Royal Passage Warrant of 1865. Pay at 10s. a day will be allowed from the date of passing final examination at the Army Medical School.

Indian allowances and time of service for pension will reckon from date of arrival in India. The period of residence at the Army Medical School will reckon as service for the full-pay pension only.

The duties will be those hitherto performed by the medical officers of the East India Company's Service, with the exception of those relating to European troops.

Surgical instruments are provided in India by the Government for the use of medical officers.

When assistant-surgeons have served the requisite time they will be examined in the following manner as a test for promotion:—

A series of printed questions, prepared by the Inspector-General of the Presidency, will be sealed and sent to the principal medical officers of stations where assistant-surgeons may be eligible for examination. It will be the duty of the principal medical officer of the station to deliver these sealed questions to the assistant-surgeons, and to see that they are answered without the assistance of books, notes, or communication with any other person. The answers are to be signed, and delivered sealed to the principal medical officer, who is to send them, unopened, to the Inspector-General of the Presidency, together with a certificate from the surgeon of the regiment, or other superior medical officer, that the assistant-surgeon has availed himself of every opportunity of practising surgical operations on the dead body.[1]

The assistant-surgeon will also be required to transmit, together with his answers to the Inspector-General of the Presidency, a medico-topographical account of the station where he may happen to be at the time, or of some other station where he may have been resident sufficiently long to enable him to collect the necessary information for such a report. Failing this, he will send a medico-statistical report of his regiment for a period of at least twelve months.

If the Inspector-General of the Presidency is satisfied with the replies to the questions, and with the certificates and medico-topographical or statistical report, the assistant-surgeon will be held qualified for promotion.

The assistant-surgeon will thus be subjected to three separate examinations within the first ten years of his service, each examination having a definite object. The first, to ascertain, previous to his admission into the service as a candidate, his scientific and professional education, and to test his acquirements in the various branches of professional knowledge; the second, after having passed through a course of special instruction in the Army Medical School, to test his knowledge of the special duties of an army medical officer; and the third, previous to his promotion, to ascertain that he has kept pace with the progress of medical science.

[1] The assistant-surgeon may see this certificate before it is sent to the Inspector-General.

The promotion of assistant-surgeons will be regulated by length of service, and not, as heretofore, by succession to vacancies in a fixed establishment of officers of the higher grades.

Assistant-surgeons of twelve years' service from the date of first commission (of which two years shall have been passed in charge of a native regiment), who shall have passed the prescribed examination in professional subjects, will be promoted to the rank of surgeon.

A surgeon, whether on the staff or attached to regiments, must have served ten years in India, of which two must have been passed, with the rank of surgeon, in or with a regiment, or as a civil surgeon, before he will be eligible for promotion to the rank of deputy inspector-general of hospitals.

A deputy inspector-general of hospitals must have served three years in India as such before he shall be eligible for promotion to the rank of inspector-general.

In cases, however, of emergency, or when the good of the service renders such alteration desirable, it shall be competent for the Governor-General in Council to shorten the several periods of service above mentioned, in such manner as he shall deem fit and expedient.

With a view to maintain the efficiency of the service, all medical officers below the rank of deputy inspector-general of hospitals shall be placed on the retired list when they shall have attained the age of fifty-five years, and all inspectors-general and deputy inspectors-general when they shall have attained the age of sixty-five years.

With a view of promoting the efficiency of the service, it has been further determined that the tenure of office by a deputy inspector-general shall, as in the case of inspectors-general, be limited to five years; officers being, however, if not disqualified by age, eligible either for employment for a second tour of duty in the same grade, or for employment in the higher grade of inspector-general by promotion thereto.

The rank of inspector-general and deputy inspector-general conferred upon officers of the Indian Medical Service under the royal warrant of 13th January 1860 is to be considered as substantive rank.

These officers, on vacating office at the expiration of the five years' tour of duty, will be permitted in future to draw respectively an unemployed salary of 1200 rupees per mensem in the former, and 900 rupees in the latter case, for a period of six months from the date of their vacating office, after which they will be placed while unemployed on the rate of pay laid down for officers of corresponding rank in Europe. These sums, deducted from the consolidated salary, will regulate the moiety of staff salary to be drawn by officers of those grades during absence on sick certificate.

NAVY MEDICAL DEPARTMENT.

Admiralty Office, Somerset House, London, W.C.

REGULATIONS RELATIVE TO THE EXAMINATION OF CANDIDATES FOR THE APPOINTMENT OF ASSISTANT-SURGEON IN THE ROYAL NAVY.

1. That a candidate for entry into the Royal Navy shall make a written application to that effect, addressed to the Secretary of the Admiralty, on the receipt of which application he will be furnished with the regulations, and a printed form, to be filled up by him, to show if he possesses the required qualification.

2. As vacancies occur, the number of candidates required will be ordered to attend for competitive examination at the Admiralty Office; but it is to be observed, that no person can be admitted as an assistant-surgeon in the Royal Navy unless he can produce satisfactory evidence that his name has been placed on the Medical Register as legally qualified to practise both Medicine and Surgery according to the Regulations established by the Medical Act. And further, he will be required to make a declaration that he is free from any

mental or bodily disease, defect, or infirmity, which could interfere with the efficient discharge of his duties as a medical officer in the Navy.[1]

3. Each candidate will be required to produce a certificate of good moral character, signed by the clergyman of the parish, or by the magistrate of the district, or by a legally qualified physician or surgeon.

4. A certificate that he is not less than twenty nor more than twenty-eight years of age.

5. That he has received a preliminary classical education.

6. That subsequently to the age of eighteen he has actually attended a recognised hospital for eighteen months, in which the average number of patients is not less than one hundred.

7. That he has been engaged in actual dissection for twelve months, and that he has performed the principal capital and minor operations on the dead body under a qualified teacher. The certificates of Practical Anatomy must state the number of subjects or parts dissected by the candidate.

8. On producing the above certificates, he will be examined on the following subjects, viz.:—Anatomy, Surgery, Physiology or Institutes of Medicine, Practice of Medicine, Chemistry, Materia Medica, Midwifery, Botany.

9. Although the above are the only qualifications which are absolutely required in candidates for the appointment of assistant-surgeon, a favourable consideration will be given to those who are acquainted with the collateral sciences more immediately connected with the profession, such as Natural History, Natural Philosophy, and the use of the microscope in diagnosis.

10. Such candidates as shall have been found in all respects competent for the appointment of assistant-surgeon will be forthwith nominated to one of Her Majesty's Ships, or to a Naval Hospital at home; or, should their services not be immediately required, their names will be duly registered for early appointments as vacancies may occur. But it is distinctly to be observed, that candidates admitted into the Naval Medical Service must serve in any ship to which they may be appointed; and that in the event of their being unable to do so from sea-sickness, their names cannot be continued on the Naval Medical List, nor can they, of course, be allowed half-pay.

11. By the rules of the service no assistant-surgeon can be promoted to the rank of surgeon until he shall have served five years, two of which must have been in a ship actually employed at sea, after which he will be required to pass an examination before a Board of Naval Medical Officers, assembled at the department of the Medical Director-General of the Navy.

12. After completing three years' full pay service, assistant-surgeons will be allowed to be examined for the rank of surgeon, but no assistant-surgeon can be promoted to the rank of surgeon until he shall have served five years, two of which must have been in a ship actually employed at sea.

13. A limited number of those candidates who pass the best examination on entering the service shall be promoted annually to the rank of surgeon at an earlier period than would occur under ordinary circumstances; and these promotions shall be awarded as follows:—The candidate who passes the best examination of his year—after five years' service. The candidate who passes the second best examination of his year—after six years' service. The candidate who passes the third best examination of his year—after seven years' service. Provided, however, that their second examinations are passed in an equally creditable manner, and that their conduct during the whole time they have been in the service has in all respects been satisfactory.

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[1] His physical fitness will be determined by a Board of Medical Officers, who will be required to certify that his vision is sufficiently good to enable him to perform any surgical operation without the aid of glasses, and that he is free from organic disease, constitutional weakness, or other disability likely to unfit him for naval service in any climate.

Part Third.

MEETINGS OF SOCIETIES.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXIX.—MEETING XIII.

Wednesday, 25*th May* 1870.—Dr PATTISON in the Chair.

Dr James Carmichael, Burntisland, was admitted as a Corresponding Fellow of the Society.

I. *Dr Milne* exhibited a FŒTUS between the fifth and sixth month, marked by a malformation of the thorax and abdomen. It was also shrivelled like a mummy, and had probably been dead *in utero* for a couple of months.

II. *Dr Milne* also exhibited an ARM, which he said illustrated the perils of ignorant midwifery. It was a case of arm presentation, and the person in attendance, instead of performing version, made strong traction on the presenting part, continuing to pull until the arm was severed from the shoulder-joint. The party having failed to deliver the child, Dr Groves of Trinity was called in, but the parts by this time were so hot and dry, and the uterus was in such a state of tonic spasm, that he found turning impracticable. Dr Milne was requested by Dr Groves to see the case, and found it one of the most difficult cases of version he had ever encountered. Fourteen hours had elapsed since the arm was torn away, and the uterus was grasping the child like a vice. The vagina was also very much tumefied. By placing the woman very deeply under the influence of chloroform, however, and working the hand gradually and carefully up, a foot was reached in the course of fifteen minutes, and then turning was immediately effected. In pre-anæsthetic days evisceration in such a case would have been inevitable.

III. CASE OF PUERPERAL FEVER. BY DR JAMES YOUNG.

My object in bringing this case under the notice of the Society is not to discuss the true pathology of the disease by entering into a lengthened paper on the subject, however interesting such an investigation might be, but merely to narrate the several phases of the case as they occurred, the treatment followed, and the result—almost inevitable in every such case—namely, death.

Mrs A. B. expected her sixth confinement to take place about the middle of April last. I had occasion to see her frequently during the month of March, when she suffered from severe neuralgic pain of one leg, but which was speedily cured by the subcutaneous injection of morphia. I was sent for at 8 P.M. on the 16th of April, but being from home, Dr Stevenson Smith kindly attended till 10.15 P.M., when I saw the patient. Labour seemed to be going on very naturally, the os was well dilated, and the head coming easily down into the cavity of the pelvis. Chloroform was administered, which induced quiet sleep, but was followed by vomiting. The pains were natural, and the child (a boy) was born at half-past eleven o'clock. The placenta was quite adherent, and had to be removed with the hand. I remained with my patient till 1 A.M., when I left her quite well and comfortable. On the 17th, at 1 P.M., she was very well and cheerful, and continued so, sleeping well till the forenoon of the 18th, when, from causes to be mentioned afterwards, Mrs A. B. was seized at ten or eleven o'clock with a severe rigor, which was immediately followed by local pain and heat of skin. When I saw her at half-past eleven she was complaining of considerable pain over the region of the uterus, with the pulse at 100. I immediately ordered ℥ss. of castor-oil and fomentations. At 7 P.M. the bowels had acted, but she was no better. I advised the ordinary doses of calomel and opium, and turpentine stupes to be applied. On the 19th I saw her four times; the first visit was at 10 A.M. Her pulse was then 104, pain somewhat moderated, considerable thirst, no more rigors. At 10 P.M. the symptoms were much the same. Calomel and opium continued, with fomentations. Milk and arrowroot were given her frequently, and ice at intervals. Early on Wednesday, 20th, I found the pulse up to 110, and a tympanitic condition of the abdomen commencing. She complained very much of a flatulent and painful distention of the bowels. There was no diarrhœa, and no vomiting up to this time; on the contrary, she took beef-tea and milk with some relish. From a rising pulse, tenderness over the abdomen, and tympanitic belly, I feared an unfavourable issue, and asked Dr Keiller to see her with me in consultation. We saw the patient at half-past 11 A.M. We prescribed opium without calomel in grain doses every two or three hours, with constant hot stupes over all the abdomen till 10 P.M., when we again met. Mrs A. B. was not much worse at this time; but she had had no sleep, and had once vomited some of the brandy which had been ordered in doses of ℥ss. every three hours. On Thursday morning (21st April) I saw her at five o'clock, and found the indications of depression increasing, and ordered rather more brandy. The stomach was becoming irritable from the enormous distention of the belly. My patient began to vomit about once or twice every twelve hours. The alvine dejections, as well as the matter vomited, were becoming blackish. We recommended the continuance of the ice and brandy frequently, with fifteen drops of morphia in water every four hours. On Friday morning there was no improvement either in strength or in the pulse, while the abdomen continued tender and increasingly tympanitic. At this stage, I ordered a tissue blister over the surface of the bowels, but without any good result. The pulse on Friday at mid-day rose to 124, and was rather weaker, with occasional vomiting; the patient continued perfectly sensible, answered questions, and never complained of headache, nor of flying pains in the muscles, till this morning. Symptoms of a fatal termination supervened on Friday night, when the pulse rose to 130–140. At 4 o'clock A.M. on the 23d, Saturday, she had a severe fit of vomiting of dark bilious matter, with indications of sinking. At 7 A.M. I ordered a tablespoonful of brandy every half-hour. At 10 A.M. the pulse was 160, and extremely feeble. At half-past eleven forenoon, she placidly and gently died, having verily "fallen asleep."

The lochial discharge was generally fœtid and scanty. There was no secretion of milk. After her fourth confinement, Mrs A. B. was attacked with phlegmasia dolens, from which she made a slow but good recovery. In order to illustrate the effect of mental distress in inducing fatal disease, I must here mention some facts in connexion with this case, alluded to in the commencement of this paper. Suffice it to say, that the patient suffered great grief and distress of mind for months previous to her last confinement. I cannot here specify very particularly the exact nature of her grief, lest I tread, as I fear I would do, on the domain of domestic affairs. The patient was kept in constant anxiety and fear. Moral delinquency on the part of a near relative was another cause of her distress of mind. Let me only further add, that, on the morning of the second day after her confinement, when she had awoke from a long and tranquil sleep, she had put into her hand ten or twelve letters (at her own previous request), all of which she read. Almost immediately thereafter, having apparently suffered from much excitement, Mrs A. B complained of a severe rigor, followed by the symptoms already mentioned. Whatever we may have to say concerning the pathological cause of puerperal fever, there can be little doubt that, in this case, it commenced in acute metritis, the inflammation extending to the peritoneum.

Dr Pattison said that he had seen two cases of puerperal fever which he believed had been caused by mental distress. In these cases the lochial discharge was very offensive, and the secretion of milk was arrested.

Dr Cairns had met with only one case, in a patient who had a phthisical tendency. She did well for some days; but after getting up and going into the kitchen one day, she was seized with a rigor, and then mania supervened. She was very restless and much excited, and all the symptoms of puerperal fever showed themselves in two days. She succumbed in eight days. He thought, in this disease, that calomel and opium were doubtful remedies, seeing that the brain was usually affected. He had relied chiefly on champagne and beef-tea. He tried chloral, but did not see much benefit from it.

Dr Cochrane looked on calomel and opium as our sheet-anchor in puerperal fever; but fomentation, turpentine, enemata, and ice, were of much benefit.

Dr Coghill thought that Dr Young's case was a typical one of a large class. There is a great variety in the pathological nature of the cases. Dr Young's was one of that large class dependent upon local uterine irritation; others, however, were the result undoubtedly of a specific blood-poison. In one case he had seen lately, there was a distinct history of smallpox contagion, and the mother died four days after her confinement. The child was marked with smallpox. He thought that Dr Young did right in giving in such a case small and repeated doses of calomel and opium, and he himself had found benefit from the administration of frequent enemata of opium in barley-water, administered as warm as could be comfortably borne. In most cases of blood-poisoning stimulants were absolutely necessary; and turpentine applied externally, and followed by a compress steeped in Battley's solution, gave marked relief.

Dr Murray said he had met with three cases of puerperal fever, and in all of them the symptoms were rather deceptive. There was no pain, but the patients were restless, the belly distended, the eye glassy, and the pulse peculiar. He said he was inclined to think that the inflammation of the uterus had nothing to do with the fever.

Dr Burn was of opinion that, when there is much local pain, leeching did good. In many cases, however, there is no pain unless deep pressure be made with the fingers over the region of the uterus. In the cases which had come under his notice the head was never much affected. He remembered seeing one patient die five minutes after putting out her tongue. In local inflammation calomel and opium, he thought, were the best remedies; and he usually noticed that if a woman's mouth became affected by the mercury she was sure to recover. He believed that in many cases the mischief begins before labour comes on.

Mr G. Stevenson Smith said that, when in Paris in 1859-60, he had seen a dreadful epidemic of puerperal fever in the wards of M. Briquét, in La Charité. The treatment consisted chiefly in the administration of very large doses of quinine, but the patients all died.

IV. ON THE EFFECTS OF CHLORAL. BY DR CAIRNS.

My principal reason for bringing this subject before the Society is to elicit the opinions and experience of the members upon it, and thereby be able, in some measure, to determine whether or not I should continue or discontinue the use of the drug under consideration. "Omne 'novum' pro magnifico,"—Everything new commands the admiration of the multitude. And chloral being a new drug must, according to that aphorism, necessarily prove a panacea for almost all diseases which affect the human frame. And if, in these circumstances, it is not administered by a practitioner for this, that, and the other disease, he must, as a matter of course, incur the odium either of being far behind in his profession or of culpable neglect.

It is for these reasons that I trouble the Society with this paper, which I shall endeavour to make as short as possible.

The method which I propose to adopt is simply to state in their order the different cases in which I exhibited the drug in question, in what doses, and with what results. And the first case I have to mention is that of—

1. *Spasmodic Croup.*—The little patient was about two years of age, and suffering from dentition, on which the other symptoms evidently depended. Chloral in 3-grain doses thrice daily was given for a couple of days. There ensued no abatement of the symptoms; and as the physiological effects were such as to attract the special notice of and to alarm the mother, I judged it prudent to discontinue the drug. The effects alluded to were great restlessness, incessant tossing of the arms, staring of the eyes, increased action of the heart, and hurried respiration, and, as the mother expressed herself, "Baby was not at all like herself."

2. *Chorea.*—This was the case of a girl of the age of 14. All the usual symptoms were well marked. To this patient the drug was exhibited for a fortnight in 10-grain doses thrice daily, without producing any apparent effect whatever, either therapeutical or physiological.

3. *Facial Neuralgia.*—The patient was a house-carpenter, and of 30 years of age. He had been ill for about eight days before I was called to see him. He had never had the same complaint before. The attacks had recurred regularly every afternoon at about four o'clock, and had continued up to about ten at night. Was ordered a smart purge immediately. On the following day I made it a point to see him at the hour at which the attack usually began, and found him with his head pressed between his two hands, and unable to speak from the pain he was suffering. Was ordered the following mixture:—℞. Chloralis hydrat., ℥ss.; liq. morph. hydrochlor., ʒii.; decoct. guaiaci ad ℥vi. F. M. Sig., Cap. coch. mag. quaque horâ quartâ.

Of this mixture it will be observed, that each dose consisted of 20 grains of chloral, 10 minims of the solution of the muriate of morphia, and nearly half an ounce of the decoction of guaiacum. Next day the attack did not come on till six o'clock,—two hours beyond the usual time,—and lasted only three hours instead of four. To be brief—he was perfectly well in three days, and on the fourth was able to resume his usual duties. After the strictest inquiry, I could not get this patient to acknowledge that he had felt anything peculiar while under the influence of the drug in question.

4. *Sciatica.*—In this case the patient had a sound sleep by a nightly dose of half a drachm of chloral; but as soon as she awoke the pain was felt as acutely as before. This continued for three weeks. The drug was given up entirely. Since then she has gradually improved under the use of quinine and aconite combined. In this case there have been manifested no physiological effects, although the dose consisted of half a drachm each night.

5. *Delirium Tremens.*—I have tried chloral in two different cases of this disease, and with very different results. In one case under its use the symptoms were aggravated, at least apparently so, to a great degree, and also prolonged very much beyond the time they usually continue. In the other case, the symptoms abated shortly after the administration of the first dose, which in each case was half a drachm three times daily. In the unfavourable case the symptoms continued for three weeks,—the chloral, however, having been discontinued by the end of the second; whereas, in the other case, they had entirely disappeared by the end of the second day. In neither of these cases were any physiological effects at all observable.

6. *Hysteria.*—This is the case of a young lady who has been married for three years; has always been "regular" up to the present time. Cries and laughs alternately at times, without being able to account for such conduct. Ordered a drachm of chloral in two ounces of a solution of starch, to be thrown up the rectum at bedtime. I called on the following forenoon, and found her in bed, and was thus accosted by her,—"Oh! doctor, you have killed me. You have made me a great deal worse than I was. Shortly after I got the injection I felt as if I were between heaven and earth, and as if no power were in my whole body. I have not slept a wink the whole night, and at this moment I feel quite powerless. And I may also tell you this, that I have seen so many ugly creatures flitting before my eyes that I am positively afraid to look up." I stopped the chloral at once, and have not ventured to try it again upon her, even per rectum.

7. *Irritability of the Bladder.*—This was the case of a gentleman who resides in the country. The urine having been reported to be high coloured, and to deposit a brick-red sediment on cooling, he was treated for a very considerable time for the uric acid diathesis, but without any favourable result. Experiencing much discomfort, especially during the night, I advised him to pay a running visit to town, which he did, when, upon examination, I found that the affection of the bladder depended upon irritation of the rectum, due to internal hæmorrhoids. The patient, having neither time nor

inclination to undergo the radical, was put upon the usual palliative, treatment, in which he persevered for several weeks, but without experiencing almost any benefit therefrom. He was then ordered half a drachm of chloral each night at bedtime, which, without having produced any disagreeable effects, so far as he has been able to observe, has invariably procured him a comfortable night's sleep and rest. He had taken it for a week when I last heard from him, which was a fortnight ago.

8. *Cancer of the Uterus.*—Chloral was given in this case only as a last resource, after numerous constitutional and local sedatives had lost their effects. It was exhibited in scruple doses four times a day. By the time the patient had taken the fourth dose, the symptoms became so alarming as to render necessary the entire discontinuance of the drug. The symptoms alluded to were, apparent deprivation of consciousness, violent heaving of the chest, lividity of the face, constantly rising up in bed, and tossing of the arms and legs; head squeezed forcibly between the hands, as if the seat of great pain; incoherency of speech.

9. *Coccydynia.*—Chloral was at once administered in this case, and in drachm doses every second night, but in the form of enemata. I saw the patient, who was a young married lady of a very nervous temperament, in the forenoon of the day following the exhibition of the first dose, and the account she gave me was, that in the course of fifteen minutes after she got the injection, she felt "as if every particle of power had gone out of her body, and that if she had not been in bed she must have fallen on the floor from utter prostration." After having persevered in the use of the drug for eight days, and with the same results as above described, I judged it expedient to discontinue it.

10. *Uræmic Convulsions.*—The patient is a married lady, 38 years of age, and has had three children, all of whom are alive and in good health. She has always been "very regular." She is still so. Her youngest child is three years of age. About four months ago she complained of slight swelling of the feet, but nothing more. I thereupon immediately secured a little of her urine, which, on the application of heat and nitric acid, became converted into an almost white solid mass. I put her immediately upon half a drachm of tinct. ferri hydrochlor. thrice daily, under the use of which she seemed to improve, judging from the urine and the state of her general health; when, by-and-by, I was sent for in great haste to "see her, because she had taken fits." I was present shortly after I was sent for. When I arrived I found her labouring under a severe and protracted fit indeed. I remained by her bedside all night, and tried the usual remedies, but without any apparent benefit. The convulsions recurred sometimes at fifteen, and sometimes at thirty minutes' intervals. On the following day I called in Dr Keiller for consultation, who ordered half an ounce of chloral to be

given in drachm doses per rectum every half-hour. The drug was administered by my own hands as directed, and with beef-tea as a vehicle. Twenty minutes after the first dose was given she became very restless. She rose up in bed every few minutes, threw her arms about her, pressed her head between her hands, and exclaimed, "Oh, my head!" tossed her legs incessantly, rendering it necessary to hold them together by an attendant. Her face became of a purple hue. The action of the heart increased to such a degree as to alarm three or four people who were present. The fits continued. I persevered with the drug until three drachms had been given, when, on finding the patient all but pulseless, I felt obliged to stop it. I then left, expecting to find her dead in a few hours. Six hours after, a message was sent me to the effect that Mrs S. had had a pleasant sleep, and that she was very anxious to see the doctor. In short, she recovered; but three weeks after, the convulsions recurred, which lasted only a day and a half instead of three days, as on the first occasion. On the second occasion no chloral was given. The patient appeared to make rapid improvement under large doses of acetate of potash and bromide of potassium—judging from the character of the urine, which, about five days ago, contained almost no albumen whatever—when there ensued symptoms of another attack of convulsions, which, in two days after, actually occurred, and which resulted in the death of the patient two days thereafter, which was on Thursday last. This case, which presented several points of peculiar interest, I shall probably bring before the Society in a separate form on some future occasion.

11. *Autopīra.*—This term simply means an experiment upon one's self, and I have used it only for the sake of convenience, because it fully expresses all I have to say under this head. The experimenter is a medical man in this city. He was induced to try it upon himself in comparatively large doses, with the view of ascertaining to what extent it could be pushed up with safety in the case of patients.

One night a drachm was taken, the second night two drachms, and the third night three drachms. The symptoms produced were the same in each case, but differing, of course, in degree. These symptoms, after the exhibition of the largest dose, were, and in the course of ten minutes, great confusion of mind—a feeling as if the subject were now in one county and now in another, and with an anxious desire to get home; a consciousness of everything going on around him, with an inability to resist giving utterance to what he knew to be profound nonsense; most extreme restlessness; action of the heart so violent that its pulsations could be heard at a distance; respiration so hurried as to "resemble the panting of a dog;" face quite purple; eyes bloodshot, and as if starting out of their sockets; perspiration in large beads on the forehead. The drug was taken at eleven at night, and the symptoms above enumerated continued without intermission till six in the morning, when, apparently from sheer exhaustion, the subject became quiet and fell asleep, and slept for two hours, when he awoke with a most violent headache. For three weeks thereafter there was felt a painful sense of drowsiness; the eyes, also, were much inflamed, and unable to bear the light without pain; and the temper—never very good—has been much more irritable than usual ever since.

Such are the chief cases which have come under my observation in connexion with chloral. I now conclude with a few remarks.

1st, Judging from the marked action of the drug on the heart and lungs, I would infer that it would be somewhat hazardous to administer it to a patient labouring under disease of either of these organs.

2d, It differs greatly in its action in different individuals. In illustration of this let me allude to the very different effects which it produced in the two cases of delirium tremens which I have mentioned; and I could adduce many other cases of a similar nature.

3d, It produces different effects in the same individual at different times. Of this I shall give only one example. The practitioner who experimented with it upon himself on three successive nights, and invariably with bad results, tried it once more about a week ago, on which occasion it produced a long, unbroken, and refreshing sleep.

4th, It appears to be most useful in the different forms of neuralgia. In one of the two cases which I have reported it yielded, or at least appeared to yield, very speedy and very favourable results. In the other, the effects were not so satisfactory, but in neither case were there produced any bad effects.

Lastly, As a pure and simple anodyne and hypnotic, it is, in my opinion, very much inferior either to cannabis Indica or opium, or either of its alkaloids. In one of the cases of delirium tremens above mentioned, after a fortnight's use of chloral, with no good, and several bad effects, a single drachm of cann. Ind. induced six hours' unbroken sleep. Under less doses of the same drug every night, combined with potass. brom., the patient gradually improved, and was able to resume his duties a fortnight thereafter. Moreover, in none of the cases, except two, which I have brought before your notice this evening, has the drug in question acted in the least degree as an hypnotic, and in one of these cases the subject had been for two successive nights out of bed, attending to professional duties, thereby rendering it at least probable that the sound sleep which he enjoyed was not due to, but in spite of, the effects of chloral.

Dr Gordon had prescribed it in a great many cases, in doses of 10 to 20 grs. repeated every two hours. The patient frequently complained of pain in the eyes.

Dr Keiller said that he had used it sufficiently often to know something of its effect, which he found to be variable. As an hypnotic, he had found it very serviceable. From the several cases of labour in which he had seen it employed, he would not be inclined to regard it as a valuable agent in obstetric practice; and his experience of chloral led him to conclude that it would not in any degree supersede the use of cloroform in midwifery practice.

Dr Cochrane said that he had used chloral with very good results. In a case of rheumatism, he had found it very beneficial, prescribed in the following manner:—℞ chloralis, ʒi.; syrupi tolutani, ℥i. M. Half of the above was taken, and it was successful in inducing a sleep of eight hours without intermission. On awaking, he felt much refreshed. On the following night he took the rest of the draught, and enjoyed a good sleep, but complained of giddiness, and a peculiar sensation over the head. He had tried it in a case of concussion of the brain, as well as in a case of convulsions. In the first case, sleep was superinduced; in the other, the convulsion ceased. At the same time, he had seen other cases in which harm rather than good was done.

Dr Coghill said that he had been much disappointed as regards the range of its utility. He had made use of it with remarkable success in all cases where opium disagreed. He had found it to act very well in all purely spasmodic complaints. In two cases of spasmodic asthma, he had found it to be very beneficial. It did not do to be repeated, but you should allow the first dose to be eliminated, say a period of two or three nights. He considered that in case of continued fever, where opium was contra-indicated, it would prove beneficial. In some cases, he had found an alarming lowering of the pulse, which sometimes went down to 60 per minute. In puerperal mania, he considered it would be found most useful, if not specific. In two cases of rheumatism, he had employed it with good effect. He had noticed that when combined with bromide of potassium, its hypnotic effects were increased. In one case, a single dose, when thus combined, had sufficed to keep the patient in a hypnotic state more or less for nearly a week—so much so, that he became alarmed. It seemed to increase the flow of urine materially. He was the first to point out its effects as an irritant upon the mucous membrane of the eyes. In some cases, a sort of muscular neuralgia had followed its use. He had given it in the convulsive diseases of children at a very early age. For example, in a case of paralysis nutans in a child a fortnight old, he prescribed two grains, with good results. In cases where the hypnotic effect was not produced, it gave rise to a low form of delirium. In delirium tremens, it was given with excellent results. When given as a suppository, or as a pessary, it causes violent irritation, not inflammatory, however, with profuse discharge from the bowels, but its action was modified by the combination with oxide of zinc. When employed endermically, it frequently gave rise to considerable irritation, and even sloughing of the cellular tissue. He had found that it almost invariably produced its hypnotic effects very rapidly, not above ten minutes passing before sleep was induced. It did not constipate at all; and he had found that in nearly all cases the appetite was greatly improved.

Dr Ritchie stated he had used chloral several times both in Children's Hospital and private practice. He had not, however, tried it in any case of labour. In a case of delirium tremens in a male adult, he had given it with the following result:—The patient was suffering from a second attack, there having been an interval of about six weeks between it and the preceding. The first attack was treated with bromide of potassium chiefly. On seeing the patient in the second attack on 15th April last, ten grains of chloral were ordered every four hours. The drachm ordered was, however, taken in the course of six hours, but produced no result. The next day (16th) the patient being no better, one grain of opium was given every four hours; six grains in all were taken, but only caused sleep for half an hour. On the 17th, he seemed better, being more composed, and having less tremor. Not caring to push the opium further, bromide of potassium, which had been used successfully in the previous attack, was ordered in 20-grain doses, every two hours. At night, half an ounce had been taken, but no sleep had resulted; the eyes were more injected, and there were greater restlessness, and more delusion; 1 grain of opium was then combined with the potass. On the 18th, he was worse, had passed a very bad night; no sleep, and had taken 2 drachms more of potass and 6 grains of opium. The potass was stopped, and 6 grains more of opium taken; but in the afternoon, as they had caused no sleep, 20 drops liq. opii sedativus, every second hour, were given. On 19th, had taken 100 drops in all; passed a very bad night, no sleep; was very restless; hallucinations of seeing, hearing, and feeling, during night. At visit he was rational; pulse 100, becoming weaker; insisting on getting up; half a drachm of chloral put him to sleep in ten minutes; he slept for half an hour. The dose was then repeated, and he slept more or less during day, and after the third dose during night. After this, he steadily improved, and required no further hypnotics of any kind; the case was complicated with hepatic congestion.

In another case of chronic hepatization of right lung, the patient had frequent spasmodic cough, preventing sleep; scanty expectoration, great prostration of strength, and night sweats. Bowels were regular, but there was great irritability of stomach, so that remedies required to be given with great caution. He suffered much from want of sleep; opium disagreed, and chlorodyne he could not take. 20 grains of chloral were given, he slept quietly, and had no sickness. The second time the sleep was not so sound; and after the third dose, 20 grains did not produce much result. Six doses of 30 grains each were ordered, and directed to be increased, if necessary; the first had the effect of producing complete prostration of consciousness. He coughed and sat up in bed during night, and had no recollection next day of anything that had passed during night. There was no sickness, however, but the effect produced on the patient was such that he compared himself to having been dead, and therefore objected to take the chloral again. He was, however, persuaded to take 30 grains. He did so on two occasions with the same result, and would not again repeat it, as he was so thoroughly helpless when under its influence. The results in this case were satisfactory so far as the production of sleep was concerned. It had no effect in moderating the sweats, but caused no unfavourable symptoms or consequences. He had also used it in several cases of the delirium and pervigilium of typhus. In one hospital case, the child had lung complication, the conjunctivæ were considerably injected, and the night delirium and restlessness great. 10 grains of chloral, repeated for three nights, had a very good effect. In an adult, with typhus, with lung complication and mild delirium, its effects were very satisfactory. He had also given it in a case of typhoid fever, with eruption, in which the prevailing symptoms had been retching and vomiting, with pain on left side of abdomen, and sleeplessness, with occasional but very slight delirium. In this case, in 20-grain doses, it did not cause sleep, yet it occasioned no sickness. He thought the hydrate of chloral was a very valuable and useful drug, and that its want of success in certain instances was not due to the drug itself, but to its being administered in unsuitable cases. He considered that much had still to be learned regarding the cases in which it was suitable, and the dose in which it should be given. It appeared to him that it was not suitable in every case, and a further experience of the remedy was required before it could be exhibited with certainty as to its effect; but so far as his still limited experience of it had gone, he had certainly found that no injurious results had been produced.

After Dr Ritchie's remarks, it was agreed to adjourn further discussion of the subject till next meeting.

Part Fourth.

PERISCOPE.

SURGERY.

Case of Sudden Death in a Paralytic Idiot, a lumbricus being found in the air-passages at the autopsy.

The patient, H., was admitted to the Evreux Asylum in February 1870, suffering from the early stages of general paralysis. On getting out of bed on the 8th of March, he suddenly said, "I believe I am going to be ill," fell down, and before he could be got to bed, he was unconscious; a loud rattle was heard in his throat, and he was dead before the doctor could be summoned.

Post-mortem.—On dividing the left bronchus close to the lung, in taking out the thoracic organs, the fragments of a lumbricus, about 7 inches long, were seen, which was cut across with the bronchus. The lungs showed that death had been the result of asphyxia.

Nothing of note was observed in the other organs, except that twenty lumbrici, about the same size as the first, were found in the intestines.

Lumbrici are frequently met with in the respiratory organs, but there is considerable difference of opinion as to whether they can enter them during life, except in cases of lingering death. In this case everything points at the lumbricus as the cause of death.—*Gazette des Hôpitaux*, No. 79, 1870.

Traumatic Tetanus cured by Chloral and the Continuous Current. MM. Dubreil, Lavaux, and Onimus.—Dr Dubreil was asked by Dr Lavaux to see a man who, seventeen days before, had been wounded in the thumb and forefinger by a circular saw. For the first ten days, the patient, who was under the care of a druggist, did not suffer much; but after some irritating substance had been applied to the wound, he was attacked by trismus and pain along the spine. He then consulted Dr Lavaux, who ordered a poultice, with bromide of potassium and belladonna internally. His pulse was 120, and he was bathed in perspiration. The muscles of the jaws, neck, thorax, and abdomen, were in a state of contraction. Respiration was diaphragmatic. The patient was ordered 90 grains of chloral daily; and, also, Dr Onimus was asked to apply the continued current, which he did by means of a pile of protosulphate of mercury. Under the chloral the pulse came down, and the muscular tension diminished. The patient remained in a half-asleep condition. The continuous current, while applied, produced a complete relaxation, but the contraction afterwards returned; the ribs moved normally during the use of the current, though they were quite fixed during the spasm. The improvement of the first days did not increase, so on the sixth day of its use the current was stopped, and on the ninth the chloral also. On this day, however, Dr Lavaux at his visit found the patient in a tetanic spasm, with a complete arrest of respiration and circulation, while the body was covered with cold sweat. He instantly applied the current as strongly as possible to the vertebral column, and under its influence the heart began to beat, stertorous respiration commenced, and the muscles relaxed. Dr Lavaux states that, for at least a minute, there was neither respiration nor movement of the heart. The electricity was used for two hours, and the dose of chloral increased to 120 grains daily. Improvement recommenced and went on for six days, when, by an accident, the patient did not get his chloral. Next day symptoms returned with great severity, attacking the muscles of the limbs. The pulse went up to 110. He then got 240 grains of chloral in twenty-four hours, and the electricity was continued. In two days the spasm diminished, and this time the cure was complete. On the fortieth day of treatment the patient was able to go on foot to show himself to Professor Verneuil at Lariboisière.—*Gazette des Hôpitaux*, No. 68, 1870.

OBSERVATIONS ON THE PATHOLOGY OF STUMPS. By Dr CHAUVEL.—This paper gives the results of thirty-two observations. Unfortunately the absence of dates greatly diminishes the value of the paper.

The cicatrix is invariably attached to the end of the bones by short fibrous bands. In three cases a *bursa mucosa* was present below the cicatrix.

The muscles were noticed in nearly every case to be atrophied and subjected to fatty degeneration, but in very varied degree.

The vessels exhibited, in nine cases, the permanence of the clot which closed the mouth of the artery; in fourteen cases the artery was changed into a fibrous cord.

As to the *nerves*, the author agrees with Hutin in denying the existence of anastomosis between the ends of different nerves, which Lang says are constant. In several cases neuromata blend the ends of different nerves into one mass, but each can easily be separated by dissection. Swelling of the ends of the nerves is not constant. Six times, in old cases, it was completely absent; in four cases several swellings were present along the nerve to some distance from the end. The author is inclined to explain the existence of these by inflammatory attacks after the operation, and of subsequent pressure and rubbing between the flap and the bone.

The state of the *bone* varies according to the position of the amputation, whether through the shaft or only at a joint. If through the shaft, the end of the bone is more likely to inflame. Stalactitic growths are common in the femur, more rare in the humerus and tibia. Generally, though not invariably, a layer of bone closes in the opening of the medullary canal.—*Archives Gen. de Méd.*, 1869.

IRREDUCIBLE DISLOCATION OF THE FEMUR ON THE PUBES—FRACTURE—DEATH FOUR YEARS AFTER.—Attempts at reduction had been made a day and a half after the accident. The patient, an old man, had complained of intense pain along the course of the crural nerve. Extension had been employed only for a few moments; all the methods of the rotation before and behind having failed, it was determined to lay the patient on the floor, and then to attempt circumduction of the limb, accompanied by moderate extension. While M. Verneuil was attempting this without the aid of an assistant, he found that his first movement caused a fracture of the femur. The head of the bone remained *in situ*, fixed on the edge of the pubes. It is worth noticing, that the pain in the crural nerve ceased after the fracture, and the patient might have regained some powers of walking, had it not been for his advanced age and a palsy of the other limb. He died four years after the accident at the Bicêtre, where an autopsy was obtained.

The head had formed adhesions to the capsule; the acetabulum, filled up with fat, was covered by the obturator internus. The tissue of the femur appeared pretty solid.—*Gazette des Hôpitaux*, No. 91, 1870.

BITE OF THE SCOLOPENDRA.—M. Lébastrany gives the following note on the poison of the scolopendra:—The poisonous scolopendra is a small animal of the family *Myriapoda*, order Chilopoda, vulgarly called centipedes. Its body is narrow, flattened, and elongated, divided into many segments. It has ten pairs of legs, the two first of which are armed with claws like those of the scorpion. These animals, which are very common in the Midi, are very active, and are found under wet stones, and at the foot of old walls. Their colour is iron-gray, slightly greenish, and they must not be confounded with the other varieties of scolopendra, which are quite inoffensive. Under the microscope it presents some curious peculiarities, especially its poison apparatus, placed in the lower jaw, and resembling that of the viper. I have lately observed two very severe cases of bite of this animal.

The first was in a child eight years old, who was bitten in the little finger, and lost in consequence the second and third phalanges. The second is a man, æt. 49, who is still ill. He was bitten in the arm above the elbow, and caught the animal in the act. Immediately on being bitten, an intense pain is felt in the whole limb. The bite forms a red mark, which enlarges and becomes black in the centre. The eschar in the last case was eventually as large as a five-franc piece. The constitutional symptoms are frequent and irregular pulsations, precordial anxiety, vertigo, headache, and vomiting. On the second day the wound exactly resembles a malignant pustule; the axillary glands enlarge rapidly. The treatment consisted in the internal administration of carbolic acid and chloral.

Part Fifth.

MEDICAL NEWS.

On the 13th of this month the foundation-stone of the new Edinburgh Infirmary is to be laid by the Prince of Wales; the Princess of Wales is expected to accompany him.

It is interesting to see how calmly our French brethren carry on their scientific labours amid the horrors of war. Nothing compels them to desist save total inability to communicate with their readers. The *Gazette Hebdomadaire* of 9th September commences with these striking words—"These are probably the last words which the roar of the cannon shall suffer to be heard. Next Friday a circle of fire may separate us from the immense majority of our readers;" and, with the exception of a little hit at the political situation, and some natural prominence to military surgery and its concerns, the number is of the usual average scientific quality. Later even than this date, the *Revue de Thérapeutique Medico-Chirurgicale* of 15th September commences by telling us that its numbers, addressed to its readers in the invaded parts of the country, have been returned through the post, that even in regard to those parts not invaded, the editor is unable to say whether his journal can be safely conveyed to them, and he adds, that in a few days the investment of the capital will probably have cut him off from all communication with the departments, while the duties of a citizen, which in these circumstances devolve upon every medical man, will seriously interfere with any attempt to continue those of editor, therefore, he suspends the publication of his journal till the return of better days, or at least, he adds pathetically, as if there were some doubt about the days being better, till the roads are again open. The rest of the journal betrays no trait of haste or insecurity, but is as carefully edited and as interesting as usual, commencing with a long and elaborate review of the antiseptic method of Lister, which seems to be making rapid way on the Continent, and revolutionizing surgery wherever it spreads. In another part of the same journal, it is stated as a proof that the heart of the medical body is as patriotic as that of the soldiery, that, at the battle of Sedan, five hundred surgeons and hospital-nurses took an active part in the fight, and left more than two hundred of their number dead on the field of honour.

Magnanimi heroes, nati melioribus annis!

THE SPECIAL LICENSED HOUSES AT BALFRON.

To the Editor of the Edinburgh Medical Journal.

Royal Edinburgh Asylum for the Insane, 16*th Sept.* 1870.

Sir,—Dr Robertson, of the Glasgow Town's Hospital and Asylum, having taken the trouble to write a very long letter to you concerning my paper on the above subject, it is necessary that I should say a little in my own defence. Of the greater part of his letter I do not feel called upon to take any notice, as it contains merely Dr Robertson's own notions of the boarding-out system in the treatment of the insane; and as this is a free country, where every man is entitled to his own opinion, I have had much pleasure in taking the initiative in this matter, and abstain from interfering with Dr Robertson thinking exactly as he pleases.

But Dr Robertson, after twitting me with "basing my views on a solitary visit," by which I presume him to mean a single visit, insinuates that I said one thing on the occasion of that visit, and did something very different when I wrote on the subject. For example, he says I was so pleased with the "patient, guardian, and house" (in the case of the paralytic lunatic), that I took "the guardian's address, and promised to send another male patient from Edinburgh," but which, "of course, I failed to do."

To this I have to answer:—*First*, I took exception to the stair, when standing on it with Dr Mitchell; and I am not aware that I said anything against the rest of the house in my article. *Secondly*, When I promised to send another patient, I meant to send one who had both his legs in a fair state of repair. And, *thirdly*, I certainly intended to ask Dr Skae's permission to send one; but there has been so great a stress of work here since the beginning of summer, that I have not had time to look out a suitable case.—I am, Sir, your obedient servant,
R. H. B. WICKHAM, F.R.C.S.

PERIODICALS RECEIVED.

American Journal of Insanity,—July.
American Journal of the Medical Sciences, —July.
American Journal of Obstetrics,—May.
American Journal of Syphilography and Dermatology,—July.
American Practitioner,—June to September.
Annales d'Oculistique,—May to August.
Australian Medical Gazette,—April to June.
Births, Deaths, and Marriages, Monthly Return of,—June, July, August; Quarterly Return,—June.
Berlin. Klin. Wochenschrift,—Nos. 26 to 38.
British and Foreign Medico-Chirurgical Review,—July.
British Medical Journal,—June 25 to Sept. 24.
Bulletin Général de Thérapeutique,—June 30 to September 15.
Dublin Quarterly Journal of Medical Science,—August.
California Medical Gazette,—June to August.
Eco de las Ciencias Médicas,—No. 25.
Food Journal,—July to September.
Gazette des Hôpitaux,—Nos. 71 to 104.
Gazette Hebdomadaire de Médecine, etc.,—Nos. 25 to 37.
Glasgow Medical Journal,—August.
Journal de Médecine Mentale, — May to August.
Journal of Mental Science,—July.
Journal of the Scottish Meteorological Society,—April.
Madras Monthly Journal of Medical Science, —June to August.
Medical Press,—June 29 to September 21.
Medical Times and Gazette,—June 25 to September 24.
New York Medical Journal,—July to Sept.
Philadelphia Medical and Surgical Reporter, —May 21 to August 13.
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Revue de Thérapeutique Medico-Chirurgicale,—Nos. 13 to 18.
Transactions of the Philadelphia Obstetrical Society,—Nos. 1 to 3.
Virchow's Archiv,—May.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Cases of Excision of the Lateral Half of the Tongue.* By GEORGE BUCHANAN, A.M., M.D.; Surgeon and Lecturer on Clinical Surgery, Glasgow Royal Infirmary; Professor of Anatomy, Anderson's University, etc. etc.

(*Reported by Wm. J. Morris, M.R.C.S., House Surgeon.*)

CASE I.—J. T., aged 43, a Westmoreland farmer, was admitted to Ward XVII. on the 27th of April 1870, and gave the following history:—

About eleven weeks ago, he noticed a slight scratch on the right side of his tongue, which he supposed was due to some irritation from a carious tooth; this he describes as being at first "like a piece of wood splitting when drying." He complains of pain in the tongue, confined till about three weeks ago to that organ, but about that time it began to run up towards his ear in a darting manner. The pain in the tongue itself he describes of a tingling character. At first, the ulceration of the tongue made but slight progress; but about four weeks ago, it became greatly intensified. At present, the ulcer is confined solely to the right side, and the swelling does not extend to the middle line, nor to the submaxillary gland. It is greatly thickened, its edges undermined, and it is covered with a grayish white adherent slough. The submaxillary gland is not enlarged, nor are any of the glands in the neighbourhood of the jaw. Patient has always enjoyed good health, and feels at present as well as ever he was.

7th May.—Dr Buchanan to-day performed the following operation:—An incision was made through the centre of the lower lip, down to the hyoid bone, then the lower jaw was sawn through with a small straight saw; a piece of string was next passed round the divided sides, and given to two assistants to hold them apart; the muscular attachments of the affected side were then detached from the jaw. A ligature was passed through each side of the tongue, and thus the organ was well drawn out. An incision was then made down the centre of the tongue to the base, with a curved bistoury, and then, by a slight turn of the knife, the remaining attachment of the tongue was cut, and the affected side removed.

There was not much hæmorrhage, and this was promptly secured by ligaturing the lingual artery. The wound was then sponged with a solution of chloride of zinc (ʒii. to the ounce). A hole was bored through each side of the divided jaw, and strong silver wire was passed through, which was twisted three or four times, and so the divided sides were brought closely into apposition. The wound was then closed with fine silver sutures.

10*th*.—Patient is keeping very well, and is taking his beef-tea and brandy very well, being able to swallow without any difficulty. Pulse 102; no headache. The incision on the chin has almost completely healed.

11*th*.—Patient progressing favourably; pulse 100. Bowels are rather costive, and on that account has not been taking his food so well. To have 10 grains of calomel.

12*th*.—Patient is a great deal better; his bowels were freely opened, and he is taking his food better to-day. Pulse 98.

13*th*.—Dr Buchanan to-day removed the sutures from the chin, as the incision has completely healed by first intention. There is a slight amount of suppuration at the lower part of the incision, but it is not of very much consequence. The jaw is beginning to get firm. Patient was up to-day for four hours; had been so for one hour yesterday. His diet has been principally beef-tea; but as he is getting tired of it, strong chicken-soup was substituted for it. The tongue is healing up very nicely.

14*th*.—To-day patient spoke a few words quite intelligibly; but as Dr Buchanan does not wish him to speak, he keeps silent. The incision at the lower part of chin has completely healed up. The silk around the teeth has come away, and has not been reapplied. He enjoys his chicken-soup very much, and he is able to swallow without any inconvenience.

17*th*.—Patient is improving rapidly. The surface of the tongue has almost completely healed, and the jaw is becoming firmer. His general health is excellent, and he takes his food very well. He can speak quite well, perfectly intelligibly to his wife, but to others not quite so, owing to his dialect.

28*th*.—Since last note, patient has greatly improved; there is no discharge from the mouth; salivation has completely stopped. The jaw is getting quite firm, and the silver wire through the symphysis was removed. His speech is quite intelligible. Dismissed cured.

CASE II.—Miss S., æt. 48, single, admitted to Ward XXV. of Glasgow Royal Infirmary, on 16th May 1870. Patient has an ulcer on the right side of her tongue, of which she gives the following history:—

In August last, she observed a small pimple at the right side of the tongue near the tip, which gave her no uneasiness at the time; but as it was gradually getting bigger, she consulted her medical man, who advised her to have a carious tooth removed. This was done, but it did not in any way influence the affection; it gradually and slowly got larger, till at the present time it is as large as a small nut. About three weeks ago, she applied nitrate of silver to it, and this was followed by ulceration, so that there is now a dirty excavated sloughy ulcer on the right side of tongue about half an inch in diameter. There has been a great deal of pain in the organ during the whole of the winter, which was greatly aggravated by any exposure to cold; but latterly this pain has been getting more severe, and she states that for two or three days before admission it has been most excruciating. The pain she describes as of a stinging character, shooting up to her ear. There is no enlargement of the submaxillary gland, or of any of the glands in the neighbourhood of jaw. There is no history of cancer in the family, but she says that her father's family, fourteen in number, almost all died of decline.

18th May.—To-day, patient was put fully under chloroform, and Dr Buchanan performed the following operation:—Two strong ligatures were passed, one through the healthy, and the other through the diseased side, and so the tongue was well drawn out. An incision was then made down the centre of the organ almost to the base. The chain of an ecraseur was then passed beyond the disease and it was removed. There was a little bleeding from the lingual artery, but it was promptly secured by ligature.

11 P.M.—Patient is very comfortable, not having much pain. No hæmorrhage

19th.—Patient is very comfortable; no hæmorrhage. She is taking her beef-tea and brandy very nicely, in small quantities often repeated.

20th.—Patient has a slight headache this morning; as her bowels are costive, she is to have ℥ss. of castor-oil.

21st.—Headache is gone; bowels well opened. She feels quite well; appetite excellent; pulse good.

23d.—Patient is steadily improving. As there is a slight discharge, which is accompanied with fœtor of the breath, she is to wash her mouth often with Condy's fluid. Patient was up to-day.

25th.—There is a little pain on the tip of the tongue; but as it is cicatrizing, it is probably due to that.

27th.—Patient is quite well, and was out to-day. The wound of tongue has almost completely healed up.

2d June.—Patient was dismissed to-day; wound entirely healed; she speaks very intelligibly.

Re-admitted 13th June 1870.—It was stated in the report of the 25th May, that patient felt a slight pain at the tip of the tongue, which was then thought to be solely due to the cicatrization; but upon her return now, that supposition is found to be incorrect, as the disease has shown itself at the site of the cicatrix. It is perfectly hard, and slightly indurated, with a slight fœtid discharge. The glands of the neck are still free from any enlargement.

18*th*.—To-day, Dr Buchanan removed, by the operation detailed in Case I., the whole of the right side of the tongue, encroaching in his median incision slightly to the left side, so that there was more hæmorrhage from this case than usual, as both lingual arteries were cut, and also because the submaxillary of the left side was abnormally large.

11 P.M.—Patient has had a very good day, being asleep for the greater part of the time. There has been very little oozing from the wound. Pulse 92.

19*th*.—Patient slept very well last night, and does not feel so much pain in the tongue to-day. She has been able to swallow a little milk and beef-tea during the night. She complains of a headache; pulse good.

20*th*.—Patient has had her bowels freely opened, and feels herself considerably relieved, the headache having gone altogether. She is able to swallow better to-day, but has still a little difficulty in doing so. She feels the ice very grateful.

21*st*.—Patient is still keeping very well; the oozing has stopped entirely; but there is a good deal of salivation.

23*d*.—The sutures from the chin were removed to-day, union being perfect by the first intention, except at the lower part of the incision, where there is a slight discharge, so that the sutures are to remain there for a day or two longer. The odour of the discharge being rather fœtid, patient is to have her mouth syringed often during the day with a solution of the chlorate of potash (ʒii. to ℥viii.); but as she says this smarts her, a weak solution of Condy's fluid was substituted.

25*th*.—All the sutures were removed to-day, union being perfect, except at the lower angle, which still discharges a little.

28*th*.—Patient was up to-day for a short time, and felt herself better for it. The wound in the tongue itself is looking pretty well, but it is covered with a grayish white fur, which, despite the washing of the mouth frequently with the Condy's solution, still continues.

6*th July*.—Patient has steadily improved since last note, and is now able to speak rather intelligibly. Salivation, which throughout has been rather profuse, is now a great deal less. The jaw is becoming firmer daily.

19*th*.—To-day, Dr Buchanan removed the wire from the jaw, as the divided sides had become quite firm. There is still a fur on the tongue, which has now adapted itself to the centre of the mouth.

5*th August*.—Nothing of note has occurred since last report, and to-day patient was dismissed.

CASE III.—Colin M'Lachlan, æt. 49, fireman, married, admitted to Ward XVII. of Glasgow Royal Infirmary, 27th May. Patient says that about two months ago, he noticed a small pimple on the right side of the tongue, about the size of a pin's head, which he scratched off with his finger-nail, after which it began to get bigger, and then an ulcer made its appearance, which was hard and indurated, and which has gradually got bigger till the present time. At first it was not very painful, but after the ulceration commenced, he says it was very much so, especially when it came in contact with his teeth. He describes the pain as being only for a short time (not continual), and of a shooting "stooning" character, up to the ears, principally the right, but occasionally also to the left. His teeth are not in any way carious, and are perfectly sound, and he says he was never troubled with toothache. He has been a rather heavy smoker, as much as two or three ounces of tobacco a week; his pipe being a "short, black cutty."

Family History.—None of cancer or of phthisis. His father died at the age of 96 years.

On examining the tongue, there is found to be an ulcer invading principally the sublingual gland, but also extending to the tongue on the right side. It is rough to the touch, and decidedly indurated. The extent of surface involved is altogether about the size of a five-shilling piece; and the patient says that there is a good deal of discharge from its surface, which is rather fœtid. The glands under the jaw and the neck are perfectly free from any enlargement. Patient's health is as good as ever it was, and he feels himself quite strong. Owing to the offensive smell of the discharge, to have a wash of chlorate of potash, ʒii. ad ℥viii.

11*th June.*—Dr Buchanan performed the operation before detailed, and there was nothing unusual about the operation. The hæmorrhage was very slight owing to the promptness with which the vessels were secured by ligature. The whole cut surface in this as well as the other operations, was well sponged with a solution of chloride of zinc (ʒi. to ℥i. of water).

11 P.M.—Patient has not had much pain since the operation, and slept for about three hours in the afternoon. To have 40 drops of laudanum by injection to-night. Pulse 86; very good.

12*th.*—He slept a few hours during the night, and does not complain of much pain in the tongue. There has not been much oozing, and what there is, is only slightly sanguineous. He is to suck ice constantly. He was able to swallow some beef-tea, with a little brandy, very well. Pulse 94.

13*th*, 10 A.M.—Patient slept almost the whole of last night. Does not complain of much pain in the tongue; oozing considerably less; continue ice, etc. Dr Buchanan saw him in the afternoon; and as there was a little fœtor of the breath, he ordered the mouth to be syringed frequently with a solution of chlorate of potash.

14*th.*—Patient is improving very nicely; is taking his beef-tea, with some brandy, very well, and does not complain of much difficulty in swallowing, nor of pain in the tongue.

15th.—Patient is progressing very favourably. There is not much discharge from the surface of the tongue, as it is often washed with the chlorate of potash solution.

16th.—Dr Buchanan removed the sutures from the chin, the wound having healed by first intention, except at the lower angle, where there is a slight discharge; and so a linseed-meal poultice is to be applied to it. Patient is keeping very well, and does not complain of any pain in the tongue.

18th.—Patient got up to-day, and is able to speak very intelligibly. He feels quite well; is able to swallow very well; salivation is becoming less.

24th.—Since last note, patient has progressed very favourably, being able to speak quite intelligibly. He takes his food well, and has no difficulty in swallowing. The jaw is becoming firm.

8th July.—The wire from the jaw was removed; union between the two sides being perfectly firm.

9th.—Dismissed well.

P.S.—It may be interesting to the readers of this Journal to know, that a patient on whom I operated in May 1865 is still well, and free from any return of the disease. The case is related in the number of the *Edinburgh Medical Journal* for November 1865.—G. BUCHANAN.

ARTICLE II. — *Combined Enucleation and Avulsion of a Fibrous Tumour of the Uterus.* By J. MATTHEWS DUNCAN, M.D., Lecturer on Midwifery, etc.

I PUT on record the following case because it is a remarkable example of an operation which is not frequently performed. This procedure, which I have now many times resorted to, and always with success, consists in removing a uterine fibroid from its bed of muscular tissue by seizing and pulling by strong volsellæ. I have resorted to it only in cases in which the discharges—bloody, serous, and purulent—from the tumour were so large and so long-continued as to imperil the patient's life; and I have only resorted to it when no other means of relief seemed available. I proceed not to enucleate the tumour or separate it from its attachments and then to remove it, but simultaneously to remove and enucleate, or to enucleate by avulsion. The operation is long and laborious, and has no claim to elegance or brilliancy, being rather rude and coarse. There are, no doubt, many dangers in the operation which I have been fortunate enough to avoid, some of which I have described in former papers[1] in this Journal, but which I am not prepared here to enter upon.

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[1] See especially this Journal for January and February 1867, and for December 1869.

The great difficulty of the operation is merely mechanical. It does not lie in the enucleation: some tumours are connected with the uterus by tissues so delicate as to offer scarcely any resistance to the disembedding force: others are united at points by strong bands of muscular and connective tissue to their beds, and these bands seem to me to be connected chiefly with the part of the tumour which is last separated; and in the operation it may be difficult to distinguish such connecting bands from a prolongation or continuation of the tumour itself. The former loosely-connected tumours come away easily, if small, and are as smooth and clean and rounded as an egg or a pear. The latter are much lacerated, especially if large, and have numerous tags and bands attached, of various dimensions and lengths.

The great difficulty of the operation is in pulling the tumour through the undilated passages. The operation, indeed, has some analogies with the obstetric forceps operation, and, like it, should not be done quickly or hurriedly. The first obstruction is in the cervix uteri, the opening also in the wall within which the fibroid is lying, and its adhesions to its bed. These three sources of difficulty combined form the first cause of obstruction. The second, and in the case of a large tumour the more powerful and embarrassing, is the perineum and orifice of the vagina, if these parts are in a natural or nearly natural state.

Mrs S., æt. 43, had been twenty years married, sterile, enjoyed good health till somewhat above two years before the operation to be described. Then the menstrual flows became profuse, and were accompanied by pain. During the last year the bloody flux was constant and often profuse. She was under the care of Dr Meikle, of Douglas, and had also other advice. Summoned by Dr Meikle, I visited this patient on the 15th June, and removed a fibrous tumour weighing one pound and three-quarters. In the operation I was greatly aided by Dr Meikle and his son.

The patient was extremely anæmic and weak, and had a bloody discharge. In the hypogastric region was a hard, rounded tumour, whose upper margin was on a level with the navel. Examination per vaginam discovered that the tumour lay high up; the cervix, dilated to fully an inch in diameter, could just be well reached by the examining finger. The os had thin rigid lips. The tumour pressed on the cervix.

To enlarge the os I cut its margin freely on each side with scissors. I then seized the tumour by a volsella, then by two, and kept pulling away, with few intermissions, except when the instruments tore their way out of the tumour. After about an hour's work, and repeated pushing back of the uterine wall by the finger, the tumour began to distend the perineum. But then further progress appeared unattainable. Continued efforts, however, brought it down a little farther so as to be within reach of the knife; and I attempted to cut it spirally, but really only succeeded in making an oblique cut into it, which allowed the lower portion to come through the orifice of the vulva. To this part a strong cord was now applied for the purpose of increasing traction. At length, after the whole operation had lasted about two hours, and after some pieces had been torn away, the whole tumour was extracted; but before its separation was complete, two thick bands had to be cut through.

The tumour was everywhere raw or recently denuded, and was quite bare of capsule or any covering. Some hæmorrhage took place during the operation, and continued for some hours after it.

The woman was, after the operation, in a state of the greatest exhaustion, and occasionally very faint and pulseless. When I left her, in charge of Dr Meikle, junior, I had the gravest apprehensions as to her rallying. But she made a slow and uninterrupted recovery. She menstruated naturally in July.

ARTICLE III.—*On the Causes of Insanity.* By J. H. BALFOUR BROWNE, Esq., Barrister-at-Law.

THOSE who seek the rainbow are like those who hunt for a cause. And yet it is a great chase. The past is ransacked, and that great digestive system which has supplied the energy for the present, is found to be like a tunnel with an exit at the other end, and no cause anywhere in it. Cause! who can get at the cause? The cause of anything in the present is the whole past! But we have to limit our inquiry to the little things which are next in point of succession to the effect-events of our time; and we call them causes, without raising the metaphysical question. Two things known together, mean knowledge—that is all we know. It is in this light, then, that we must look at the question of the etiology of insanity. Who can say what are the causes of insanity? One must enter into a synthesis of causes, and confess that the man is half the cause of his own hurt, if he is pierced by an arrow, and that he is half the cause of his own disease, if through any combination of circumstances he becomes insane. Life is like a long string of algebraic figures, with the signs plus (+) and minus (−) before each quantity. They are always varying and being carried over from one side to the other of the equation which is to determine the value of x, which stands for health. Who can work it out, till death reduces the value of x to 0? Well, he who would say why a man goes insane, would require a complete and thorough biography of the man, would require to know the influences he fell heir to, the rails which were laid down for him to run on before he was born, by the material fate of hereditary transmission. "Every man carries his destiny on his forehead," say the Mohammedans; but not on his forehead only, say we. Every nerve has an iron destiny forged in the past. Man is like a watch wound-up by fate, to go for a season; he is made for good or evil, by the past; and it is not the present that predetermines the future, but the past that predetermines all time. And what past went before that past? Was it He who was before time? The question is a great one, and not to be answered with a little footrule of common sense. One thing alone seems certain, that any answer to the question, as to what causes insanity,—save that "through all time, if we read aright, sin was, is, and will be the parent of misery," and misery is the parent—and often the child resembles the sire—of insanity,—is almost impossible. But the question narrows itself on account of our inability to answer it. It comes to be a small question, with a little creeping answer, always tentative, always on its hands and knees, always groping in the great darkness.

Causes, then, which are thought at the present time to conduce to insanity, have been divided into predisposing and exciting, and into physical and moral. One thing is clear, whether there is nothing but mind, or nothing but matter; and that is, that the one set of these causes, in so far as we are here concerned, may be regarded as operating through, or by means of, the other. If mind is a manifestation of body, it is quite evident that moral causes are causes only on account of the physical changes which they produce. If mind manifests itself through body (which may be the objective idea), and it is with those manifestations that we have to do in this place; and if, as bad glass distorts the images we see through it, by twisting the rays of light, so defective organism, or the lack of power to adapt subjective ideas to the objective idea, may distort the manifestations of mind,—it is with the cause of this distortion that we have here to do.

I. *Of Remote or Predisposing Causes.*—Civilization, it is said, has led to an increase of insanity. Statistics, in so far as they bear upon this question, are rubbish. We are told that insanity is rare amongst uncivilized peoples, and that in this country 1 in every 500 is mad. Does that statement afford any figures for comparison? What is "common" expressed in numerical relation? And if it were settled, what would it prove? Not what it is meant to establish, it seems to us. We hear, however, that theoretical considerations lead one to suppose that insanity has increased, and that civilization is the predisposing cause. Those theoretical considerations, as explained by Dr Maudsley, are, that as in a complex organization like the human body, there is a greater liability to disease, and the possibility of many more diseases, so in the increased complexity of the mental organization, it is reasonable to expect an increased liability to mental disorder. But why? In the first place, he assumes a fact; and in the second, we know that notwithstanding the increased complexity of structure of the human body, notwithstanding the number of kinds of tissues, and the orderly subordination of parts, that "man seems in his transitions from one climate to another to resemble domestic animals, with this difference, that he bears those changes better in proportion as he is civilized."[1] Why should not the same principle hold good here? Why should not the more complex mental organization lead to a more careful mode of life? Why should not the higher mental development lead, through science, to the diminution of the disease, through cure, by care in breeding, and by the avoidance of those actions which lead directly or indirectly to abnormal mental conditions?

There is more earnest living in those days, it is true; but why the human mind, which has made for itself the power to be earnest, which has so far overcome barbarism as to have gained the capacity for being "bored,"[2] should not have at the same time gained the vigour to withstand its unhealthy influences, it is difficult to say. To assert that the tendencies to disease only can be transmitted, is to say what is absurd; but it is to express plainly what seems to have been tacitly assumed in this case, for the sake of argument. Health is inheritable. And he who says, "I gave my children all the health I got," says something better and nobler than he who says, "I gave my children double the property I got from my father."

We confess, it is difficult to see why our present civilization should have produced this bane. That we pet our lunatics, and number them as carefully as David did the people of Israel, is true, and the more we number, the more the plague rages. That the numbers of lunatics in asylums at the present time is greater than it was in times past is true, but it proves nothing but that asylum accommodation is much increased. That the number calculated to be in England at the present time is greater than it was some years ago, only suggests a more efficient system of ascertaining the actual amount of lunacy throughout the country, or that phases of life are now recognised as insanity which were formerly classed under the head, sanity. But all the statistics that can be procured are utterly untrustworthy. It seems to us, however, that another argument tells against the supposition that civilization is a predisposing cause of insanity. Imbecility is the form that mental unsoundness usually assumes in uncivilized countries, while in countries which are advanced in civilization, mania is more common. Surely, then, if the mania has increased under the influence of civilization, imbecility must have decreased in the same proportion. It is surely unfair to ask to be allowed to run with the hare, and at the same time to hunt with the hounds. If civilization has to bear the blame of the one, it ought to have the merit of the other. Again, it is assumed that the conditions of life are less healthy now than of yore. Some gentlemen somewhat inconsistently ascribe insanity in man to the awful struggle to get rich, and ascribe the same disease in woman to the want of this struggle. But how does our age differ from others in this respect? Had they no struggles in time past? The struggle for bread with the gnawing tooth of hunger for a spur? Is the death-struggle less deleterious to mental health than the miser's grasp? But the struggle sharpens wits: men are "moulded through their faults" and their misfortunes. Adversity wears a jewel in its head. Even this struggle for money, which takes not a few of our fellows into the dust and mud by day, makes nature more and more man's handmaiden.

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[1] Waitz, Anthropology, sec. iv. p. 205.

[2] See Comte.

One author endeavours to show that the law of nature which throws aside the weak and useless, and gives life's battle to the strong, causes insanity. He illustrates this principle by the dominion of man over weak woman—shows that some women, under the present system, must sin to live, and that marriage is the true and pure woman's goal; he asserts that, in consequence of various circumstances, they cannot all get married, and, having no real work to do, that which was meant for honey, turns to gall: "sweet wants" have been in the heart in vain; desires have withered, because there was no answer to those demands of nature. That marriage is the chief end of a woman's existence, is, according to this author, due to the fact that for centuries women have suffered deprivation of liberty, have been in servitude to man, and have been taught that to minister in one way to man's enjoyment was their highest function—that when this hope fails, the heart and brain sicken, and they go mad.

Nothing is so popular in our days as this kind of reasoning, which is not reasoning at all. One may ask with reference to the above, (1.) Is it a fact, that in consequence of this circumstance women do go insane? (2.) If there are more women, in proportion to the population's calculated number, insane than men? And if these questions could be answered in the affirmative, one might, upon theoretical considerations, think that as Nature trains by means of conditions, if she trained women to look upon sexual intercourse as a goal, Nature has done wrong; and Nature is, to say the least of it, a very bad schoolmistress. If it could be shown that the proportion between men and women varied at the present time from what it formerly did, there might be some weight in the argument. But as that cannot be shown, it is difficult to see how an education of the sex, by means of conditions, to look upon sexual intercourse as a high function, should not all along have included in its curriculum lessons of strength under its deprivation—a strength which would withstand those disturbances which ever rise, according to this author, and which are the proximate causes of insanity. Why Nature, with as good means at her disposal, should teach one lesson and implant certain characteristics in the sex, and refrain from teaching the other, or implanting the other set of characteristics, it is impossible to say. Why, under such circumstances, women should masturbate, become religious, or go mad, or do all three, it is difficult to see.

Overcrowding, and the very great distinction in respect to wealth and luxury, do, along with many other circumstances, lead to insanity; but to adduce these tendencies as proofs of the increase of insanity simply on the ground that they are remotely predisposing causes, is absurd. If the causes of insanity are used at all in this connexion, it must be only by way of comparison (and that a careful one) with those predisposing causes which existed in times past, with a view from their relative potency (if that can be ascertained without solving the question of increase) to argue as to the number of perverts from sanity to insanity, which each of them made. This is a large question; assertion will not meet its demands.

The question as to the influence of civilization is infinitely more important in relation to the change of type, in relation to synthetic etiology, than to the question of increase. That the pursuits, the conditions of social life, the forms of religion, and the direction of national thought, influence and modify character, and in that way modify the quality of insanity, is certain. But it is not for us in this place to examine in what way, or to what extent, this is the case.

Sex.—Women were at one time thought to be more predisposed to insanity than men. Esquirol and Haslam agreed that it was so. But at the present time most writers seem to imagine that men are more prone to mental disease than women. Many writers, in their utter incompetence to deal with figures, which are two-edged swords, have computed the number of patients admitted into one asylum in a certain time, and concluded that the proportion of women to men in these admissions, is likely to be in the proportion of insane women to insane men throughout the world, and hence deduce a theory as to the predisposition. But it is to be remembered that the proportion between the insane of the two sexes is not found to be the same in all countries; and it can be confidently affirmed, that even in the same country it varies at different periods. The argument as to the weakness of the female sex making her more liable to suffer from adverse circumstances, is, as has been already shown, fallacious. To say that her weakness is brought about by her servitude, and that it is her weakness makes her liable, just in consequence of never having been exposed to risks, is to reason in a circle. One must look at the whole circumstances. If her servitude has made her weak, it has been by protecting her from certain works and hardships which men have undertaken. If those works and hardships are still undertaken by men, then women, as a class, are not exposed to those circumstances which can, together with their weakness, lead to insanity. One circumstance must not be regarded as the predisposing cause of insanity in a class where other circumstances are to be set against it. Rest is produced by forces that *could* move. Women in their present state are said to be less liable to those forms of insanity which occur in men, and can be traced to intemperance and other excesses. But it is their weakness and consequent servitude which have kept them from those works which lead to those excesses. It is absurd, therefore, to say that sex or its weakness predisposes to insanity. We should say that the numbers of men and of women who go insane differ little, if at all, and that it is impossible to argue that sex has any influence as a predisposing cause in the production of insanity.

Age.—Children become insane. Wherever there is a mind at all, it may become liable to mental disorder. All the diseases which occur in adults, with the exception of general paralysis, have been observed in children. Idiocy, however, is the most common form of insanity in early life; and not unfrequently, where unusual manifestations of mental activity have occurred at birth, after the convulsions caused by dentition or gastro-intestinal irritation, imbecility has taken the place of the undue excitement of the faculties. Instances of insanity, however, previous to puberty, are rare. It is not uncommon in girls upon the appearance of the menstrual secretion, especially if it is delayed beyond the usual time for making its appearance. Insanity is most frequent at the age when man is at his best,—from 25 to 50 is the stratum of time in which his activity is greatest, and in which, owing to the fact of his activity, he is most exposed to the exciting causes of the disease. "Man's first word," says Hare, "is 'Yes;' his second, 'No;' his third, 'Yes.'" And so the diseases of a life correspond to this process of thought. Idiocy is the absolute affirmation—the very acme of assent. Mania is a universal "No;" and senile dementia is the same blank assent again. Acute forms of mental disease in advanced life are rare. It requires strength to go mad.

Education.—Education is not simply learning to read. The most important lesson a man can learn in youth is to be healthy. Not always to be thinking one needs a pill, but to be thoroughly unconscious of the existence of a stomach, which, like one's friends, only obtrudes itself when it is going to annoy. That education should not make a man clever and bad, is surely true; and that it should try to make him clever and good—which is the exact antithesis of insanity, which is bad and stupid beyond the reach of punishment—is surely the true function of education. But education only too often is conducted upon such universal principles that individuality is altogether overlooked; and very frequently tendencies which were latent, and might in time and with careful training have been eradicated, are made actual and living, and lead to insanity, by and through a pernicious system of education. Education, properly conducted, might do something to make a compromise between the future and the past. Men inherit debts from nature which many have to pay with death, many with insanity. Education ought to husband and cultivate the assets, and too often it only hastens the end, which is on its way. We have not space to say more concerning education as a predisposing cause.

Hereditary tendency.—So powerful is hereditary predisposition, that in almost every case one can find that the taint has a history. It seems like a river that may dip under the earth for a while, but will flash out on the plain of time a little further down. But it is not insanity only that predisposes to insanity. It grows from slips as well as from the bulb. And epilepsy, hysteria, and neuralgia in the parent, are found to predispose to insanity in the children. Nay, more, it is certain that diseases which do not in the parent specially affect the nervous system, as phthisis, scrofula, syphilis, do in the offspring, in so far as they conduce to a delicate nervous constitution, predispose to insanity. The question as to the hybridity of diseases, if we may so say, is one of much interest and importance. Like other hybrids, however, the prolificacy of the insane seems limited.

As to the proportion of cases in which hereditary predisposition is observable, many opinions have been hazarded. Dr Burrows says that he found a hereditary tendency in six-sevenths of his patients. Moreau argues that it is detectable in nine-tenths of the insane. Esquirol stated that a predisposition to insanity is more readily transmitted through the mother than through the father; and Dr Pagan[1] has observed that children born before the appearance of mental alienation in the parent are less likely to suffer from the disease than those born after the outbreak of the first attack.

Pregnancy may be regarded as a predisposing cause of insanity. Many cases are on record in which insanity has come on during pregnancy in which suicide has been attempted; and in many cases the nervous irritability, and other peculiarities which occur in the course of gestation, have passed into one of the forms of monomania. Many women look forward with dread to the approaching confinement, which, together with the effect produced by the influence of the organs of reproduction, is sufficient in many cases to bring on insanity.

Delivery has, however, a better right to be considered as a predisposing cause of mental derangment. In the divisions of puerperal insanity into that which occurs during pregnancy, that which occurs at the period of parturition, and that which occurs during lactation, the greater number of recorded cases fall under the second of those three heads. At this period women are peculiarly liable to attacks of insanity. Frequently the form of insanity, or the kind of delusion, is in some way connected with, and dependent upon, the peculiar condition of the organs affected.[2] In many cases the mothers show a strong aversion to see their children, and often the hatred is so intense as to prompt to acts of violence. The explanation of the frequency of insanity at this period, on the ground

[1] Pagan's Medical Jurisprudence, p. 36.

[2] See Evidence of Dr Simpson in Mordaunt *v.* Mordaunt.

that the loss of personal charms, and the consequent extinction of the hope of being still the object of devotion as heretofore, may lead to morbid feelings through mortified vanity, which is given in some books, is absurd and unsatisfactory. Surely the physiological causes are sufficient to account for the predisposition which exists at this period. This seems borne out by the fact, that women at the menstrual period are more prone to attacks of mental disease than at other periods—a circumstance which probably is the cause of the physiological connexion between the moon and lunacy. When lactation ceases, as well as during the time when women are nursing children, there is a tendency to mental excitement which frequently passes into insanity. Many women are insane at the period of giving birth to children, and at no other time suffer from mental unsoundness. The cure of puerperal insanity is very frequent, and we believe that, in good hands, no case of childbirth insanity would last more than a few months if it was treated in its earlier stages. All those physiological conditions which occur at delivery, during lactation, when lactation ceases, and at that period of life when the menstrual secretion stops, render women more susceptible to the influences of the exciting causes of insanity. To assert that the loss of good looks, and the sorrow of wounded vanity consequent thereon, have not any influence in predisposing to mental disease, would merely be *to assert.* But that it ought to be considered as a prominent proximate cause of insanity, where there are adequate physiological conditions to account for the genesis of the disease, is to mistake the relative importance of two classes of causes.

Religion.—Some writers have placed religion amongst the list of those things which predispose to insanity. They might, with equal justice, have placed *life* as the predisposing cause of all insanity. It is true that certain forms of religious excitement do tend to foster insanity, but it is equally true that certain kinds of life lead directly to the abnormal condition of mind which we call insanity. It seems to us that religion should be looked upon not as a cause conducing to disease, but as one of those causes which has a most sanitary effect, not as a series of circumstances tending to mental degeneracy and insanity, but as a series of circumstances directly tending to mental improvement and health. Yet we do not deny the fact, that those somewhat excited religious gatherings which have taken place of late years, in which the Lord Jesus is expected to be found in the midst of many fears, much shouting, and an occasional attack of hysteria, do tend directly to mental unsoundness. We would not argue that the extreme form of High-Churchism—the most material form of Christian worship, in which symbolism really often loses its soul, and has nothing but the body left—that the constant and all-absorbing exercises of that form of religion, accompanied as it is with much unhealthy self-examination, and a self-bruising asceticism, will not in many cases predispose to insanity. But we do argue, that religion in its fullest sense, and religion as patterned in the life of Him whose name is connected with the creed of this country at the present time, is not calculated to predispose to insanity, but that, on the contrary, it is calculated to predispose to the most perfect mental health, that it is necessary to that perfect health, and that the human mind finds in that creed, when it is thoroughly understood and earnestly believed, the most thorough and perfect guide to a life of soberness and chastity, faith and welldoing, which are the very conditions of health in the individual practising according to these rules, and of its transmission to those that are to come after them. It is the fashion among a certain class of shallow thinkers to hold that sanity consists even in the absence of all prejudices—even Voltaire's one prejudice, the *préjudice de Dieu*—and so to those persons religion and its systems seem prejudice-manufactories, and thus causes which predispose to insanity. Prejudices! if it were not for prejudices, not a man on earth would be sane, not a man on earth would *be*. These small men themselves are prejudiced against prejudices,—let them reason about that!

Before we cease speaking of the predisposing causes of insanity, we may say that whatever has the effect of debilitating the physical structure, or the moral and intellectual faculties, has more or less tendency, according to the character of the individual, to predispose to mental disease. Moral vices, excessive mental strain, great anxiety, and unusual excitement, all predispose to alienation of mind. Individual temperament, in the widest sense of the term, must be taken into consideration in every case.

II. *Proximate or Exciting Causes.*—An exhaustive treatment of the exciting causes of insanity can only find place in a work on the pathology of mind. In this place the mention of some of the causes which lead directly to insanity must suffice. It must be remembered that the cause which in one case may be looked upon as exciting, must, in another case, be regarded as predisposing. Malformations of the brain—dependent, it may be, upon morbid changes in the skull, the defective development or the arrest of growth of this organ—are all causes which operate powerfully to produce mental unsoundness. The brain-weight in microcephalous idiocy is not only small when compared with the brains of healthy individuals, but the relative weight of the brain to the body of the microcephalic idiot is very much less than the relative weight of the brain to the body of a person in normal health. Injuries to the head which have produced lesion in the structure of the brain, or which have caused disease which has led to a partial disorganization of the part, may be looked upon as exciting causes of mental unsoundness. Tumours in the brain, and many of the alterations produced by organic disease in the brain and its membranes, also proximately conduce to insanity. Starvation and exposure to intense pain, extreme fatigue, long hunger, as well as apoplexy, palsy, epilepsy, and convulsions of all kinds, are, as it were, open doors to insanity.

The sympathy which exists between every part of the bodily organism—

> "Each part calls the furthest brother,
> For head with foot hath private amity"—

leads in many cases to abnormal mental action, either on account of functional derangement, or on account of the structural disease of some remote part. But there seems to be a more intimate "private amity" between the brain and its neighbours, the stomach, the liver, the intestines, and uterus, than there is between the head and foot. Insanity grows like a graft upon many other diseases, but in certain cases the existence of insanity at the same time as a bodily disease does not seem compatible. Insanity arises not unfrequently upon the suppression of an accustomed discharge, as from the nose, and often accompanies irregularities in the menstrual secretion. Intimately connected with the causes above enumerated are those to which the name "moral" has been given, and which operate banefully upon mental health through the brain. Strong emotions and passions, every circumstance in mental life which is calculated to make a deep impression, and appropriate a large amount of the free mental energy, may, upon occasion, become a cause of insanity. Attention, whose "very quality," according to Goethe, "is that at the moment it makes a nothing all,"—attention, which really is the faculty which distinguishes the great man from the small, so that any man might be great if he only knew how and to what to direct his attention, may, where it too constantly makes "a nothing all," degenerate into the mental unsoundness of a fixed idea. Disappointed love, terror, pride, ambition, anger, jealousy, avarice, all that is good and noble, as well as all that is mean and disgusting, may be a cause of insanity, and its very intensity and constancy are the very elements which tend to make it the bane of this fever-life, rather than the antidote. "The wine is good, but the vessels are old or crazy." It is to be remembered that in relation to such cases the effects are very often very near in point of time. Terror, that in one not predisposed to mental disease might cause convulsions, will often, in one foredoomed to rave, cause an almost immediate attack of mania. Joy, when very intense, sometimes causes insanity. The "happy medium" must have more joy in it than this dangerous extreme, and would lead us to "welcome each rebuff," or, as a somewhat bold author put it, thank God for our corns. A case is on record which tells the story of two lovers who had made each other perfectly happy, and, possibly fearing what Shelley calls "love's sad satiety," killed themselves. The incursion of those diseases which are caused by sorrow or jealousy is somewhat slower. Sorrow not only steals "the natural hue of health from vermiel lips," and the "lustrous passion from the falcon eye," but steals the something which gives passion to the eye and sweetness to the vermiel lip. Excessive grief saps the foundation of the mind, as it were, with tears, and every room-faculty gets damp and mouldy. The individual seeks seclusions, hugs the painful ideas, foregoes his or her usual exercise, avoids a laugh as they would a devil; they lose appetite, digestion, and sleep, and illusions and delusions spring from such soil. We have already examined some of those general causes, which are the great outcomes of human nature in time, as predisposing to insanity. We have shown the extreme difficulty of estimating the effect of those widespread causes; but, notwithstanding the difficulty, it is necessary for the medical querist to make the endeavour, especially with regard to such causes as are to be found in intense political excitement and enthusiasm; remembering, however, that it is brains, which, like casks that have lost their hoops, are constitutionally weak, that give way under the influence of such excitement. That there is some peculiar sympathy between man and man which emphasizes individual sentiment, which modifies individual thoughts, is a fact. It is proved by the extraordinary conduct of mobs, the enthusiasm and death-forgetfulness of armies, in the knee-made fervency of worshipping congregations. That the excitement which exists at certain periods of political importance should be increased to an extraordinary extent by its widespread participation with others, was what we were prepared to expect, remembering the well-marked tendency of excitement to increase until actual exhaustion draws the rein. But none could have anticipated the extraordinary outbursts of excitement which have taken place, and which are chronicled in the histories of nations—excitements which have all the marks of frenzy, and might easily be considered as a species of insanity. Even in our own country, in times not very long gone by, the nerves of cool, wise men quivered with the sympathy of humanity, because other men's hearts beat, and other men's brains throbbed with party feeling and political fervour. Just so a harp, untouched by human hands, will send out a little sound, if there is the music of a brass band near. But how infinitely greater was the shock of such world-actions as the Revolution in France. Esquirol has observed, that the more prominent events of French history during the half-century before the date at which his words were uttered might be illustrated by cases in the lunatic asylums of that country. Just as a storm tears down trees, and the rivers carry them to the sea, where they are buried and made stone mummies of, and are for times to come a record of the storm, and of the trees it blew over,—so in the wards of insane hospitals may indices to the political storms of the past be found at the present time. The extraordinary influence of conjoined action, of conjoined excitement, or of conjoined depression, is well understood; and that it leads to insanity among many, as if by the continuance of the same powerful influence, is a fact. That such influences may account for epidemics of insanity suggests itself as a probable solution of that psychological difficulty. We know that certain common physical influences powerfully affect the frequency of epileptic fits and paralytic disorders. We know, however, that common mental influences more powerfully affect such nervous disorders as hysteria; and it is to be argued that the same relation of causes to the persons influenced would produce effects corresponding to the symptoms of epidemics of insanity. It is useless to quote the threadbare story of the seven suicides at the Hôtel des Invalides. But we may mention that which occurred at Versailles, where, in 1793, when the population was only 30,000, no less than 1300 suicides occurred,[1] and many others of a similar character are upon record. Three cases of attempted suicide occurred in Sheffield in one day only a few months ago.[2] That such circumstances arise from the causes above alluded to, we are inclined to believe; and that most of the explanations usually offered of such phenomena are unsatisfactory, we confidently assert.

A more minute analysis of the connexion between antecedent facts and consequent mental symptoms, would be ill-suited to the general plan of a work on the Medical Jurisprudence of Insanity. An assertion that the connexion between organized matter and manifestations of mind is simply that of cause and effect, and is in no way different from the relation between any bodily organ and its function, would, in so far as we are concerned, be absolutely untrue. Indeed, we would deny any such relation; and although we have no right to enter upon such a discussion in this place, it is our duty to warn the reader not to expect in all cases to be able to detect disorganization of brain, accompanied by symptoms of insanity, and to expect to meet with well-marked cases of insanity where no disorganization of structure is observable. Nor are we to expect to find that there is an invariable proportion between the capacity of the cranium and the amount of mental endowment. It is not so in the race, nor in the individual. This is proved by the researches of Virey, Parchappe, Desmoulins, and others. Nor, where it does occur, are we to look for a traceable proportion between the two classes of phenomena. Many die insane, the insanity simply having been functional derangement through the sympathy of living parts. No trace of structural decay is observable as a post-mortem symptom. Enough, however, has been said concerning the causes of insanity.

ARTICLE IV.—*A Case of Placenta Prævia: with some Remarks on the Anodyne Effect of Carbolic Acid in Metritis.* By W. ALLAN JAMIESON, M.B., Berwick-on-Tweed.

MRS M., æt. 40, mother of two children, one only of which survives; the youngest born five years ago. Her first labour was an instrumental one. Has had three miscarriages, one since the birth of her last child: believes herself now (4th October 1869) to be nearly at her full time. Three weeks ago, noticed the discharge of some blood, much as at a menstrual period. This forenoon, when passing water, a quantity of blood, partly fluid, partly coagulated, came away; but on lying down the flow ceased. It recurred, however, once or twice; so, becoming alarmed, she sent for me.

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[1] Art. "Suicide," Dict. des Sciences Med.—Burrow's Commentaries, p. 438.
[2] See "Echo" for May last.

On examination I found the head presenting, the os high, admitting two fingers; the margin of the placenta could be felt through the os, only partially covering it, and attached to the left side of the cervical portion of the uterus. The placental souffle was heard most distinctly in the left hypogastric region. Fœtal heart heard clearly, normal. The loss of blood still persisting from time to time, I separated the placenta from the inner surface of the uterus for about an inch, with the effect of arresting the hæmorrhage. In the evening she had 35 drops of laudanum. Next day there was no escape of blood worth mentioning; the os uteri was in the same state, and there were no pains: she was therefore kept in bed, no other interference being necessary.

She remained in the same condition till three o'clock in the morning of the 10th October, when the waters broke, and I saw her soon after. The os still only admitted two fingers; there was no hæmorrhage; the uterine contractions were regular, but the segment of placenta being in the way they did not act advantageously upon the os. Chloroform was given, but had no effect in facilitating the dilatation. I asked Dr Philip Maclagan to see her about half-past six, and we agreed that in the case of any considerable hæmorrhage, turning should at once be had recourse to; in the meantime to watch, in the hope that the pains would gradually open the os.

It was not necessary to delay long, for at seven o'clock a sudden gush of blood showed that interference was requisite, and, as the os was now more dilatable, could be at once proceeded with. She was put deeply under chloroform, and the uterus steadied by a woman seated in front of her in bed. In passing my hand between the membranes and the womb I felt the placenta loose, and augured badly for the chance of saving the child. Turning and delivery were rapidly completed, but the infant was dead. As a considerable quantity of blood followed the expulsion of the head, a full dose of ergot was given to ensure contraction, and after an interval two grains of opium.

11*th*.—She went on well till this evening, when the pulse rose from 100 to 120: there was some tenderness in the abdomen over uterus, and great sensitiveness in the vagina; the lochia were natural. The vagina and uterine cavity were washed out with a carbolic acid lotion, used warm, in the proportion of ʒj. to Oj., which gave great relief; bran poultices were applied to the abdomen, and opium given as required.

12*th*.—The temperature to-day was 101·8°; the pulse 120, regular, but of no great strength; abdomen soft, tender, some tympanitis. Ordered Liebig's extract often, and whisky-and-water occasionally; injected carbolic acid lotion twice; 1 gr. of opium at night.

13th.—Temp. 100·6°, pulse 108, abdominal tenderness lessened, lochial discharge natural, breasts full and hard. Injection repeated. ℥ij. ol. ricini.

14th.—Temp. 99·4°, pulse 100, no tenderness over uterus, oil acted gently. Some headache; breasts painfully distended; to relieve this, extract of belladonna was smeared over the mammæ, and half-drachm doses of Epsom salts given thrice a day.

The vagina was still washed out with the lotion once or twice a day for some days longer, quinine with muriatic acid was administered, and under this treatment she was convalescent on the 21st.

The anæsthetic influence of carbolic acid when applied to the peripheral extremities of cutaneous nerves is well known, and has been utilized in the treatment of burns, where it speedily soothes the denuded and inflamed cutis; while its effect in relieving toothache, when placed in a hollow molar, quite as probably depends on its anodyne as its caustic action. But, as a special sedative to the uterine nerves, no allusion has, so far as I am aware, been made, though my observations tend to establish it as as useful in this respect as in the case of scalds. In the case reported above, Mrs M. experienced an amount of relief from pain after an intra-uterine injection containing carbolic acid, which was not explained by the removal of clots and thick discharges, or by the mere warmth of the lotion. Since then I have employed it in several cases, where, from the length of the labour alone, or from its complication by the use of instruments, there was any risk of metritis, and I have uniformly found that it afforded a degree of comfort which seemed only accountable from its influence in deadening the sensibility of the uterine nerves. Used early in any case where the onset of puerperal endometritis might be feared, it would prove, I think, of remarkable efficacy in warding off an attack, quite apart from its valuable disinfectant and deodorizing qualities. Some months ago I saw a case where metritis came on apparently from exposure to cold in a phthisical young woman in the seventh month of her first pregnancy, and in which miscarriage resulted. The uterine inflammation was kept within bounds by the frequent use of carbolic acid injections, but the patient, though she completely recovered from the metritis, eventually succumbed to the pulmonary disease. In her case an hour or two of refreshing sleep followed the use of the lotion. The employment of the injection must be begun within a few hours after the completion of labour, when the primary fatigue has been recovered from; and if the woman be laid on her left side, with a washhand-basin held closely under the nates, while the lotion is forced into the uterine cavity by means of a long vaginal pipe introduced within the os, and attached to a

Higginson's syringe, neither fatigue to the patient, nor any risk of chill from wetting the bed, need be feared. The strength of the lotion should be one or two drachms of acid to each pint of warm water. This theory of the action of carbolic acid may or may not be a correct one; but if, through the use of this agent, the dangers to parturient women are diminished, as I have little doubt they are, provided it is used *early*, the mere validity of the hypothesis is of no moment.

ARTICLE V.—*An Account of Midwifery.* By THOMAS HAMILTON, M.D., L.R.C.S. Ed.; one of the Surgeons of the Dispensary, Doctor to the Parish and Poorhouse, Kelso.

> "Ingenuas didicisse FIDELITER artes emollit mores, nec sinit esse feros."

I AM aware that there has been a difference of opinion of the value or importance of the art of midwifery, and that even some have undervalued and disparaged it. However this may be, I am of opinion that, if one expend the necessary time and labour, he will not want opportunities of preventing evil, and of doing good to his fellow-creatures. It is with the view of contributing in a very small degree to a knowledge of midwifery, and to add another to the articles on this subject which have appeared in your Journal, that I have written an abstract of some midwifery cases in a country district.

I propose, in the first place, to give an abstract of the cases; in the second, to make a synopsis; and in the last place, to give a brief account of the extraordinary. The number of cases, 402. The married, 320; the unmarried, 63; married or single not known, 19. A first labour, 115; second, 62; third, 49; fourth, 27; fifth, 28; sixth, 21; seventh, 15; eighth, 15; ninth, 12; tenth, 2; eleventh, 1; twelfth, 6; labour not noted, 49. The number of children born, 407. Of these, males, 176; females, 206; the sex not noted, 25.

Five mothers had twins. Fifteen children were still-born, of which two had deformed and defective heads; two were abortions at the fifth month; two were abortions at the sixth month (one of these had blains and pustules on the body, the mother being ill of smallpox); three were born at the seventh month (one of them had a defective head); two were born at the eighth month.

The presentation was,—the cranium, in 394; the breech, 3; the feet, 7; the arm, 2; the placenta, 1.

The umbilical cord was of various length, texture, and contortion. There was a knot on one; two were fixed or implanted on the very edge of the placenta. A prolapsus of the cord attended one of the cranium, and two of the footling presentations.

One woman died of smallpox; one of puerperal fever; one of abortion and bad health; one died of convulsions 54 hours after delivery; one died of convulsions, after delivery by perforator and crotchet; one, after delivery by forceps, ultimately sank under fever; and one woman died undelivered. Seven deaths in all.

These cases of labour may be divided, as is commonly done, into the natural, the tedious or protracted, and the preternatural. In the first class, the cranium in one position or other was the presenting part. The period of labour, though it varied much, might average about 24 or 36 hours.

False or spurious pains sometimes harassed for two or three weeks. The true pains of labour vary infinitely in intensity and intermission, but they become more urgent as delivery approaches. The pulse becomes quick, the cheeks flushed, and there is more or less sweating. The membranes enveloping the fœtus, with the contained fluid, exercise a wedge-like and equable pressure on the mouth of the womb, which gradually dilates, its edge or margin at the same time becoming thinner, while those burst, discharge the fluid liquor amnii, or it oozes off, and delivery follows. After delivery of the child, the placenta is either expelled, or it is easily extracted, aided by a little coughing on the part of the mother.

Cases of the second class were protracted beyond the ordinary period, by which and the greater suffering they were distinguished from the first. It is a matter of skill and experience to determine whether or not operative or manual assistance is required.

In the third class, the cranium was impeded or locked in the pelvis, or some other part of the fœtus than the cranium presented at the os uteri, or the placenta presented, or convulsions attended.

Operative or manual assistance was required in these cases to effect delivery. It facilitates all midwifery operations to lay the patient across the bed, and bring the buttocks well forward. Sometimes there is no more convenient position than on the knees.

Chilliness, shivering, cramp, sickness, were common symptoms, but not serious. Vomiting and hiccup were of serious import sometimes.

The remedies were few and simple. To expedite delivery, it was common to cause the woman to walk about the room—to give a gruel or similar drink warm, or to give a dose of castor-oil. In a few cases, small doses of tartar emetic, $\frac{1}{8}$th of a grain, were given at half-hour intervals. ʒss. laudanum was given after a severe labour. The ergot of rye was given in two cases, without obvious effect. Chloroform in a very few. After labour, a little whisky and warm water was in several cases given, especially after severe labour.

The following cases appear to deserve a more particular narration:—

CASE I.—*2d October*, 8 A.M.—Mrs ——, a primipara. She wants a fortnight of the ordinary period of gestation. Has had two fits this morning, when she was insensible for some minutes. Her eyes and face are suffused. She shivered, and was speechless. P. 120. Skin hot. Hirudines sex temporibus. ℞ Sulphat. magnes. ʒij., magnes. ʒss., aquæ ℥ij. Capiat statim.

I was called elsewhere: in my absence, the late Mr Robertson bled her to ʒxx., and gave a clyster. The convulsions returning, he delivered her at 6 P.M., by perforating the cranium and extracting the child, a male.

8 P.M.—Mouth drawn to the left side; jactitation; pulse weak. *3d.*—Convulsions; ℞ Calomel, gr. v.; a clyster. *6th.*—Delirium. *9th.*—She died.

CASE II.—Mrs ——, aged 35. Expecting labour every hour. She had made no complaints during the day, but was returning from a short errand, when she suddenly fell down at her own door. When I entered, along with another practitioner, she was without pulse at the wrist or heart; but hearing pulsation of the fœtal heart, I immediately made an incision into the abdomen and uterus, and extracted a mature female child, but already dead. The umbilical cord was of a dark colour.

On post-mortem examination, a large hard tumour of a kidney-shape, weighing 1 lb. 3 oz. avoird., was found attached by a narrow pedicle to the outside of the fundus uteri. It was very hard, and when cut showed a fibrous texture in a matrix of a softer substance and darker colour.

Next day a further examination was made. *Thorax*—Both lungs sound; heart rather large; wall of the left ventricle rather thicker than normal, soft; a little mucus on the pericardium. *Head*—Nothing unusual with brain.

CASE III.—*30th June*, 4 P.M.—Mrs ——, aged 30. Her sixth labour. She was seized with the pains last night, but they became sharp only this forenoon. Has swollen legs, and a cough. Pulse quick, full; skin hot; face flushed. Baby moved to-day. The os uteri is high; margin thick, irregular; cranium presents; a clyster given. 11 P.M.—Pains continue; cranium has made a little progress. I felt a depression across lower belly, which was shortly effaced. She is afraid there is something wrong. *14th*, 3 A.M.—There is now a sanguineous discharge from the vagina. Pulse quick, weaker; face pale; os uteri high, contracted; the cranium is not felt.

I now requested a consultation. Blood was let from the arm, and a dose of laudanum given; but no attempt to deliver was made. She died early next morning.

CASE IV.—*27th September.*—A healthy woman, after an ordinary labour, was delivered of her second child on the evening of the 27th September. On the 2d October she was attacked with shivering, headache, and other febrile symptoms. On the *3d*, Bowels loose. *4th.*—Milk and lochia were scanty. *6th.*—Delirium, subsultus tendinum. *8th.*—She died, on the sixth day of the fever, and eleventh from delivery.

CASE V.—The eleventh labour. Twenty minutes or so after the delivery of the child, I made one or two attempts to remove the placenta, which was, however, firmly retained. Faintness and convulsions followed. Some brandy and water having been administered, it was liberated and removed after a couple of hours.

CASE VI.—*3d March*, 5 P.M.—Mrs B., her first labour. The midwife saying she had a cross-birth, I was sent for. The cranium presents. *4th*, 12 noon.—Little progress having been made, I requested a consultation with Dr M., who drew off some urine with the catheter and took leave. 5 P.M.—No progress having been made, I delivered her of a mature boy with the forceps. *5th.*—Urine drawn off by the catheter.

Both mother and child did well.

CASE VII.—She received a severe concussion of the brain on the 12th August, when she was in the last month of pregnancy. She was delivered of a small female child on the 17th, when she appeared sensible; but even on the 25th she had forgotten her labour, and did not recognise attendants. She recovered.

CASE VIII.—*8th May*, 3 P.M.—Mrs P., her eighth labour. Clots of blood have been discharged this afternoon, and she has lost blood daily since Thursday (this being Monday). A fortnight ago I prescribed the acid sulph. dilut. for a small discharge of it. *9th*, 10 A.M.—Per vaginam, I felt the placenta presenting; the late Mr Robertson being present, I introduced my hand, ruptured the membrane, seized a leg, turned the child, and extracted a female child with little sign of life. I then extracted the placenta, and completed the delivery. Gtt. L. tinct. opii were given. The infant having been put into warm water, respiration was soon established.

Mother and infant both did well.

CASE IX.—*8th May*, 10 P.M.—Her fourth labour. Pains since 4 P.M. Liquor amnii said to have been discharged yesterday morning. *9th*, 7 A.M.—No pains; os uteri high, hardly dilated. *10th*, 7 A.M.—Frequent pains since 4 A.M. I find an arm presenting. After some difficulty, on account of strong contraction, I succeeded in bringing down a foot and securing it. Pushing aside an arm which interfered, I brought down the other foot, then extracted the body and head. Mr B. assisted. She recovered.

CASE X.—*5th March*, 9 P.M.—Delivered of a female child, her first, after a natural labour. The next morning she was attacked with convulsions and stertorous breathing; V. S. e brachio ad ℥xx. ℞ Gum camphor, gr. v.; ipecacuan. gr. iii.; conserv. rosæ q.s. Fiat bolus. 10*th.*—No return of convulsions.

Case XI.—5*th May*, 2 p.m.—A single woman; her first labour; attended by a midwife. She has been in labour about forty-four hours. I was told she had vomited frequently, and discharged green liquid from the vulva. In this state of matters, having washed the rectum with soap and water, and drawn off with the catheter about a potfulof dark-coloured, fetid urine, I applied the forceps, and delivered her of a mature male child, which appeared to have been dead for a day or two. 7*th.*—Rigors this afternoon; dark fetid urine drawn off; a dose of castor-oil, ʒvi., given. 9*th.*—Rigors again; tinct. opii, ♏xx. 12*th.*—Vomiting; oozing of urine from the vulva. 23*d.*—She gradually got worse, and died to-day.

Case XII.—18*th December*, 9 p.m.—A poor Irishwoman, living in the same street with me; her second labour. A hand protrudes; liquor amnii discharged about half an hour ago. I turned and delivered her of a dead male child, mature. I gave her tinct. opii, ʒss. She recovered.

Case XIII.—At her last labour, I delivered her with the forceps. She has not yet had a living child. In the present, after an ineffectual attempt with the forceps, it was necessary to deliver with the perforator and crotchet. Dr Robertson was present and assisted. She recovered, but with a vesico-vaginal fistula, which, I believe, was afterwards successfully operated on by Professor Simpson.

Case XIV.—25*th January*, 7 a.m.—A poor Irishwoman, in her first labour, attended by a midwife since yesterday morning, who sent for me. The pains have rather remitted; the head is well down. 12 noon.—No progress having been made, I washed out the rectum with soap and water, and drew off about a half-mutchkin urine with the flexible catheter. I then introduced the lever over the occiput, and, by gradual traction, delivered her of a mature but dead female child. She recovered completely.

Article VI.—*On Angina Pectoris.* By Francis W. Moinet, M.D. Edin.

Angina pectoris is a subject on which a great deal has been written, both at home and abroad; still, there are as many conflicting theories and opinions as to its nature now, as there were when it was first brought under the notice of medical men by Heberden. This seems rather surprising, when we consider the great advance the science of Medicine has made since then, especially in the means of detecting changes of structure undiscoverable to the naked eye. Certainly we now know the morbid appearances of the heart and large bloodvessels found on dissection of cases of angina, and we are also less liable to make errors in diagnosis. Notwithstanding, there has not been as much more light thrown on the subject as we should naturally have expected. Having carefully examined the different accounts of this disease, and reports of cases, there are some points which, to our mind, offer a solution of the difficulty, and which help to clear the way to an understanding of the pathology of angina pectoris. Although many differ so widely as to the cause of angina, we find them agreeing on this point—that in the majority of cases it is a disease of advanced age, the cases occurring in the young being few and exceptional, and they have perhaps on this account not received the attention which they deserve in the discussion on this question. What is more especially to be noticed in these cases is, that it is never fatal, while in the old it invariably is. Nearly all the writers have failed to see, or at least to separate, these two sets of cases. The former we would call functional, the latter organic, angina pectoris. We will now proceed to give our reasons for believing this distinction to be justifiable.

When it occurs in the young, it is always curable, and no organic disease of heart or bloodvessels can be detected by the most careful examination. In the other class, we can nearly always find signs of organic disease during life; if not then, we are sure to find them after death. The cases of functional angina, compared to the number occurring in the old, are very few, as the following table of Lartigue will show:—

	à 17,	1 (Macbride).
	à 21,	1 (Van Brander).
	à 21,	1 (Despartes).
	à 29,	1 (Gintrac).
de 30	à 35 ans,	6
	à 40 ans,	2
de 42	à 50 ans,	11
de 51	à 60 ans,	25
de 61	à 70 ans,	15
de 71	à 77 ans,	4

Still they are more important as regards diagnosis and treatment; for, in the young, and in those in whom it is simply functional, or not due to any appreciable organic change, we find it rapidly amenable to treatment, and curable. Hence the importance of a diagnosis from a disease so formidable and invariably fatal as organic angina, in which treatment can only be palliative. Another reason why we consider these cases functional, is because they occur at an age when degeneration of the heart's muscular substance and calcareous disease of the coronary arteries are never found; we can discover no symptoms of organic disease, and, as we have mentioned above, they can be cured; while we know that angina pectoris depending on organic disease is incurable, and from its nature must be so. Another reason is, that it occurs in the young at an age when functional derangements of heart are far from uncommon, and degeneration impossible. We find it, also, chiefly in the nervous and hysterical, or in those suffering from weakness, from whatever cause, as over-smoking or over-studying in young men, accompanied generally by dyspeptic symptoms, the angina being due to a weakened innervation of heart, or sympathetic with irritation in other organs, and speedily giving way to treatment directed on that supposition.

Then, if we look at the morbid changes which we find on dissection of cases of organic angina,—for we happily never have an opportunity of doing so in the functional cases,—what are they? Principally degenerations of structure; as fatty heart, calcareous disease of coronary arteries, accumulation of fat on or in the muscular substance of the heart, etc., all interfering with its proper supply of nourishment, and gradually paralyzing its action. These are all changes which show the presence of depraved vitality, due either to the decay of nature or brought on by intemperance and high living, deranging and modifying healthy nutrition. In the young we can have neither of these conditions; the age excludes the possibility of structural changes from the decay of nature, and intemperate habits could not have lasted so long as to induce them. Then, again, in the organic cases, the course of the disease, whether long or short, always terminates fatally, as a rule, the attacks increasing in severity with the advance of the disease, remedies having no power to prevent the result; while, in the functional, the course of the disease is never long, and never ends fatally. All these, we think, are indisputable reasons for the separation we have made of angina into functional and organic. The most puzzling cases, however, are those in patients who are in or near the prime of life, in whom we can detect no organic disease of the heart, but still of an age not incompatible with degeneration of heart's substance. In these, we must confess, very difficult cases, if we find that during a paroxysm the pulse is regular and of fair strength, although perhaps a little weak, and that, after treatment directed to the nervous system or stomach, the attacks diminish in frequency and ultimately cease, we may diagnose a case of functional angina. The most important point to be attended to is the character of the pulse during the paroxysm. If it is very feeble, irregular, intermittent, or unusually slow, prognosis ought to be unfavourable, and organic disease expected; but if we should find none of these indications, we give the patient the benefit of the doubt, and treat accordingly.

Without this separation, we can see how cases so very dissimilar could only be explained by many and various theories, and how utterly impossible it would be to reconcile them. Many of the old writers attributed it to nearly every lesion found in heart and large bloodvessels, as calcareous degeneration, or inflammation of aorta; some even went so far as to believe it connected with cancer of the uterus or adhesions of the pleuræ. Then, again, by some it was called a neurosis, by others a gouty inflammation, nearly every medical man having an opinion of his own distinct from his neighbours. Now, with the advance of pathology, we can, so to speak, circumscribe these lesions; and, looking carefully at their history and progress, we find the only connexion they have in producing angina is, by their all tending directly or indirectly to interfere with the nutrition of the heart and so weaken its action; a weakened heart being the only lesion never absent in cases of angina, and, what is more conclusive, often the only lesion present, many of the other lesions found in these cases being mere accidental complications. The following is a case in point:—A. W., æt. 51, admitted into the Royal Infirmary 1865, and said to be affected with an aneurism. His complaint commenced three years before admission. He complained of angina pectoris, cough, and spit, which contained traces of blood. On examination, face and neck were found swollen, cheeks had a congested venous hue. There was a tumour, pulsation very obscure, to right of sternum about its middle, size of a large egg, which was hard to the touch. The cartilages of ribs and sternum were pushed out and involved in the tumour, but not altogether absorbed. Tumour dull on percussion; dulness extended across to left nipple, and from the top of the sternum to between the fifth and the sixth ribs. Systolic murmur at base not heard in the tumour. Patient died seventeen days after admission.

Post-mortem.—The prominent thoracic tumour was cancerous. It affected the sternum and part of the pectoral muscle, ribs, and subcutaneous tissues covering these parts. The anterior mediastinum was occupied by numerous hard white masses of cancer. These masses connected together the bone, pericardium, part of the anterior margin of lung, and part of the diaphragm, so as to make these parts an almost inseparable mass. The visceral and parietal layers of the pericardium were covered with masses of cancer. The disease also involved the substance of the heart. The aorta was pervious, and the right innominate vein was occluded and cancerous. From this dissection we must see that the heart's action must have been seriously interfered with by the extensive adhesions and deposits, and that the muscular substance of the heart was encroached upon, tending, if not to degeneration, at least to atrophy, and so producing a weakened heart, as readily as fatty accumulation or degeneration could do. In the same manner we can understand how aneurismal or other tumours involving or causing pressure on the heart could also produce, in like manner, angina pectoris.

Having thus separated the functional from the organic, and as briefly as space will permit mentioned the lesions found in the organic cases, we will now consider how we should name it. To apply the term neurosis to all these cases indiscriminately would be absurd; still we think we may call functional angina a neurosis, by which we mean that its symptoms are all due simply to a derangement of its nervous supply, all our diagnostic and pathological skill being unable to detect any lesion. These symptoms point, we believe, to the paroxysm as a slight paralysis due to innervation, and generally excited by some sudden exertion bodily or mental; the heart's substance, being otherwise healthy, and having undergone no degeneration of structure, rapidly recovers its irritability. How different is a case of organic angina! The symptoms are also due, we think, to a paralysis; but here the lesion is a serious change in the muscular snbstance of the heart, brought on by different causes; hence the difference in the history and progress of the case. The paralysis occurs in the one in a comparatively healthy heart, while in the other it is weakened by the inroads of disease. Thus, although the heart recovers itself at first, it is due to the fact that, in the commencement of the disease, the attacks are slight; but as it advances, the attacks become more frequent and more severe, the heart is gradually worn out, and fails to recover itself: hence the result is fatal. So, while we have reason to call the functional attacks a neurosis, we have none to call the organic so. A careful examination of the dissections points to a weakened heart as the immediate cause of the paroxysm in both: in the functional, the heart being simply weakened as to its innervation; in the organic, weakened both in its innervation and structure. The only remaining question is, What is the paroxysm? Is it a paralysis or a spasm? This is, perhaps, the most difficult point of all; but, at present, we cannot enter upon it; although, as we have already mentioned, we are inclined to believe it a paralysis.

ARTICLE VII.—*Mollities Ossium in relation to Rib-Fracture among the Insane.* By W. LAUDER LINDSAY, M.D., F.R.S.E., Physician to the Murray Royal Institution (for the Insane), Perth.

I VENTURE to offer the following cases, and the relative commentaries thereon, as a contribution towards a better knowledge of a subject that has lately attracted a good deal of attention, both public and professional, in England, in consequence of the animadversions of the press on various instances of *rib-fracture* among the inmates of its county lunatic asylums. The subject to which I refer includes, on the one hand, a consideration of that unnatural fragility of bones, which renders them liable to fracture from the most trivial causes; and on the other, the frequency of rib-fracture, which cannot possibly be attributed to ill-usage by attendants.

I do not offer my remarks apologetically; for I believe that the animadversions above referred to are unwarranted either by evidence or legitimate inference—at least, in the majority of cases. Nor am I to be understood as affirming that fragility of the bony system is peculiar to the insane; though I believe it is much more common among them than is usually supposed. Whether it is as common as it is among the sane, or more so, remains to be proved. This is a subject that seems to me deserving of full and immediate inquiry. I have repeatedly stated[1] that I have never met with, nor heard of, any lesion among the insane that is to be considered *quite peculiar to them*, and in this sense to be regarded as diagnostic of the existence of insanity. It is wonderful, however, how persistent and ingenious are the efforts of alienists to make out an essential or specific difference between sanity and insanity, the sane and insane, as regards their pathology and morbid anatomy, in the face of incessant and egregious failures. The "thin partitions" that are supposed to separate them—that "do their bounds divide" between great wit and madness—are not real or perceptible,—not demonstrable or definable; and all efforts artificially to create specific distinctions where Nature has none, *must* end only in failure.

I do not necessarily connect fragility of the bones in the insane with the accidents that have of late years been made the subject of sensational, and, I believe, most ungenerous and unjust, outcry by the fourth estate. There *may* have been, in some cases, an essential connexion between osseous fragility and rib-fracture as cause and effect; but the effort to prove or disprove such a connexion in the cases referred to, is no part of my present object, which is simply—so far as regards,

I. *Mollities ossium* in the insane, to show that it sometimes exists in as marked a degree as among the sane; and as bearing on

II. *Rib-fracture* in the insane, to point out (*a.*) The frequency of self-injury. (*b.*) The very slight violence sometimes required for rib-fracture. (*c.*) The existence of serious or fatal surgical injury without external marks, or any relative symptoms. (*d.*) The importance of post-mortem examination in the detection of masked or unsuspected injury. (*e.*) The desirability of distinguishing from each other[2] injuries that are—1, accidental; 2, self-inflicted; 3, the result of maltreatment by attendants. (*f.*) The injustice of attributing rib-fractures and similar injuries necessarily to attendants. (*g.*) The frequency of such injuries is a necessary consequence of the non-use of mechanical restraint. (*h.*) Those who are responsible for the frequency of such injuries are, therefore, those who have advocated the *non-restraint dogma*. (*i.*) There are *no* pathological lesions peculiar to insanity.

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[1] *Vide* "Illustrations of Pathology and Morbid Anatomy in the Insane," Journal of Mental Science, vol. xii. p. 522; and the following Reports of the Murray Royal Institution,—30th, pp. 15, 16; 32d, p. 15; and 38th, p. 15.

[2] *Vide* 32d Report of the Murray Institution, p. 11.

I. *Case of Mollities Ossium.*—The patient was an unmarried lady, aged 49, eminently nervous in temperament, of fine build of body, and of high delicacy of constitution, with a strumous tendency. For a long series of years, she had been the subject of chronic insanity. In the last seven years of her life, during which she was under my observation, her general health was fair, till she began to complain of aching pains in the bones, of a character supposed to be rheumatic. There gradually supervened a marked general debility, requiring rest in bed, to which she was confined for the remainder of her life—a very few weeks. While bedridden, boils appeared on different parts of the body; then acute tuberculosis suddenly showed itself, and rapidly proved fatal (in a fortnight). A post-mortem examination was made, which revealed, besides infiltration of the lungs with miliary tubercle, and slight fatty degeneration of the kidneys, as well as other pathological lesions, the following condition of the *bones.* The walls of all bones were thin and soft, easily pierced by any steel or other hard instrument. The normal medullary (or cancellated) tissue was absent; the interior of the bones being occupied by a thickish fluid, which consisted apparently equally of blood and oil. Their surface was abnormally vascular and coloured—usually a deep reddish-brown. The sternum was so flexible, that it could be doubled on itself without much difficulty. The general condition of the whole bones of the system was that usually described as the earlier stage of *mollities ossium;* it was apparently essentially a hyperæmia, followed or accompanied by *fatty degeneration* of their whole texture and contents.

For some time prior to her decease, the *urine* had been highly *phosphatic*, but non-albuminous. It does not, however, follow that this apparent excessive excretion of phosphates stood directly related to the condition of the bones. For, on the one hand, as Neubauer and Vogel point out, mere *sediments* of earthy phosphates in the urine do not necessarily indicate *excess* of these salts—absolute excess being determinable only by quantitative analysis;[1] and, on the other, as I have elsewhere shown, phosphatic urine is common among the insane,[2] while there is no reason to regard *mollities ossium* as otherwise than rare (comparatively) among either sane or insane. According to some writers, the excretion of phosphates, as measured by the phosphatic character of the urine, bears a specific relation to certain forms or phases of mental disease (*e.g.*, mania); but I long ago pointed out that this is a fallacy, and my experience has been confirmed (apparently) by the later researches of Dr Addison, now of Larbert. He writes:—"The quantity of phosphoric acid excreted in states of mental excitement was *less* than after convalescence. . . . This perhaps is the most important fact elicited by the investigation, for a greater than the average excretion of the phosphates has come to be regarded as a pathognomonic phenomenon of maniacal excitement." (P. 15.) . . . "I consider it sufficiently proved that the quantity of phosphoric acid excreted during the course of a maniacal attack, is *less* than that voided in an equal time after recovery." (P. 16.) . . . "I believe that the excretion of phosphoric acid is regulated more by the condition and weight of the *body* than by the action of the *brain*." (P. 27.)[1]

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[1] "Guide to the Analysis of the Urine." Translated for the New Sydenham Society, 1863, p. 331.

[2] "On the Chemistry and Microscopy of the Urine in the Insane," Journal of Psychological Medicine, July 1856, pp. 492, 496; and 30th Annual Report of the Murray Institution, p. 16.

In the foregoing case (I.) there was no fracture of any of the affected bones; but it is obvious they were in a condition in which some very trivial cause might have caused fracture. Druitt tells us, in his admirable "Surgeon's Vade-Mecum," that in *mollities ossium* "from a fall or some other *slight injury*" the bones are liable to break; or that "bone after bone breaks from the *slightest cause*" (1851, p. 217). Even in the earlier stages of the degeneration, and still more so in the later ones, slight stumbles in one's own bedroom—falls against the edges of beds, chairs, or tables during the night—or even ordinary, and still more so inordinate or unusual, muscular effort—may suffice to produce rib-fracture.

The morbid condition of the whole bony skeleton in this case was quite unsuspected during life; it was detected, and could only have been detected, by post-mortem examination. Such cases furnish one of many sorts of argument that might be adduced in favour of such examinations in *every* death from insanity.[2] I have elsewhere pointed out that autopsy frequently reveals the most unexpected pathological lesions of the most interesting kind—though not necessarily interesting as throwing light on, or essentially connected with, the *mental* or cerebral disease. Autopsy in the insane is, however, one of these subjects, on the other hand, regarding which it may prove that "ignorance is bliss," and "'tis folly to be wise;" for it, and it alone, may bring to light injuries or lesions, the origin or cause of which may become subject of judicial inquiry, newspaper outcry, and public condemnation! The frequency with which previously unsuspected rib-fracture is detected by post-mortem examination may be illustrated by the following:—

II. *Cases of Rib-Fracture detected only on Post-mortem Examination*, which occurred in the practice of Dr Workman, of the Provincial Lunatic Asylum for Upper Canada, at Toronto—a gentleman who is distinguished among American alienists for the attention he devotes to morbid anatomy, as well as for the manly frankness with which he expresses his opinions.

A. A male, æt. 52, "of large size," suffering from general paralysis, his insanity characterized by "great restlessness and violence." During life he "neither admitted that he suffered any pain, nor gave any indication of so doing." Death arose apparently from "cerebral compression." At the post-mortem examination, attention was therefore directed mainly to the *brain*. "After I left the dead-room, believing I had seen *all* that the case afforded, my assistants proceeded to examine the rest of the body. . . . They were surprised to find pus diffused beneath the muscles on the left side" (of the thorax), "and fractures of five ribs running in a vertical straight line a short distance from the junctions with the cartilaginous portions. No reunion had taken place. . . . There was no reason to doubt that the fractures of the ribs had taken place *before* the patient's arrival at the asylum. The rectilinear course of the fractures appeared to indicate that they had resulted from a *fall* forward on some hard, narrow surface, such as the edge of a board or plank. The account given as to his violence and restlessness corroborated the supposition. This patient not only appeared perfectly free from pain or muscular impairment up to the period when symptoms of cerebral or cerebro-spinal compression showed themselves, . . . but he preached and shouted perpetually."[1]

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[1] "On the Urine of the Insane." Reprint from the Brit. and For. Medico-Chirurgical Review, April 1865.

[2] *Vide* 39th Report of the Murray Royal Institution, p. 13.

B. A male, æt. 33, "furious and dangerous; . . . restless, noisy, and destructive" on admission, but subsequently became quiet and harmless. During life he complained of no pain, and had no cough. Immediate cause of death was, nevertheless, hydrothorax. Post-mortem examination revealed the fracture of seven ribs, the appearances proving that the fractures here also had occurred *prior to admission*.

In neither of these cases was any lesion of the *ribs* either diagnosed or suspected during life. "Neither of the two would have been known without post-mortem examination." These and similar cases also illustrate the fact that—

1. *Surgical injuries sometimes occur among the insane without external marks of violence;*[2] and that—

2. *Serious lesions frequently exist without relative symptoms during life.*[3]

None but those habitually engaged in the management of lunatics can be aware of the extent to which accidental or self-inflicted injuries occur, or of the exceptional character of these injuries. They are exceptional in so far as it is (1) frequently difficult to understand how they *could* have been inflicted [I refer to cases in which ill-usage by attendants has been impossible]; and (2) in so far as serious lesions may be developed without the usual accompanying or proportionate physical indications or vital symptoms of any kind. Thus, I have known almost all the ribs of a young man's side broken without a single *outward* indication, or the exhibition of any kind of *symptom.* No complaint ever emanated from the patient; there was no bruise-mark, no lung-symptom, no indication of the slightest suffering from first to last. Nor was it ever discovered how the injury was inflicted. The fractures were detected accidentally by manual palpation. The patient was confined to bed for some days, his thorax tightly swathed in flannel merely as a precautionary measure; but no chest or other symptoms were ever developed, and the patient never could comprehend why he was confined to bed and swathed in flannel!

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[1] Report of the Provincial Lunatic Asylum, Toronto, for 1862, pp. 13-15. The same case is also reported in the American Journal of Insanity for April 1862 (*vide* Journal of Mental Science, vol. viii. p. 585). It is there stated, in addition, that the patient was "tall and powerful," and that the "fractures ranged in a straight line, as if all caused by one blow; or, most probably, by a fall on some hard-edged substance."

[2] *Vide* 34th Report of the Murray Institution, p. 33.

[3] *Vide* 31st Report, p. 13; and 34th Report, p. 36, of the Murray Institution.

It is not surprising that, from ignorance of such facts, mere surgical experts, unacquainted with the peculiarities of injury or disease in the insane, should occasionally express, in courts of law, opinions that are calculated to do great injustice to the attendants of lunatic asylums. Dr Workman is very severe, though not too severe, on certain recent exhibitions of this kind in London. Thus, he says, "It has been incontestably proved that lunatics afflicted with general paralysis, or with other forms of intense cerebral disease, may sustain severe and extensive osseous or other lesions, without manifesting the slightest perception of pain or impairment of muscular activity." Nevertheless, "in one of the English cases, ... two surgeons gave testimony to the effect that no person having two or more fractured ribs *could* be free from pain or freely use the costal or other respiratory muscles! *Ne sutor ultra crepidam!* Before delivering opinion on any question relating to insanity, or to the insane, medical practitioners would do well to acquaint themselves with the subject on which they are to testify."[1] . . . . "Eminent medical gentlemen who have not spent their lives in the practical study of insanity, would act very prudently in abstaining from rash deliverances in all questions [relating to the malady] in which they find themselves in antagonism with those better qualified to give a correct opinion." Until the peculiarities of accident and disease among the insane are generally recognised, and until juries cease to be guided by the opinions of such experts, who are not qualified to give opinions of any real value, "how can we hope (as alienists) to protect ourselves from the fallacies of their testimony, whether before the tribunals of justice, or the more terrible ordeal of public judgment—a court whose revisions of error hardly ever come in time to reinstate its victims in the position of innocent, much less of meritorious, men?"[2] I quite agree with Dr Workman as to the little value to be attached to the opinions, as applied to the insane, of surgeons in ordinary practice, who are unacquainted, by personal experience, with the peculiarities of surgical

[1] Asylum Report, pp. 14, 15.

[2] Journal of Mental Science, vol. viii. pp. 582-584.

injuries in lunatics. Having myself had frequent occasion to hold consultations with surgical practitioners in cases presenting surgical difficulty in my own practice, I have found their opinions too often not only useless, but absurd; because the procedure or appliances that are proper in the case of a quiet sane patient, who co-operates with his surgeon in the efforts made for his recovery, are not equally applicable—indeed, are sometimes singularly *in*applicable—in that of a violent, restless, destructive maniac, who applies all his strength, perseverance, and ingenuity to thwart the procedure intended for his benefit.

The two preceding classes of cases refer to the *non*-detection, during life, of rib-fracture, or of the osseous fragility on which such fracture may depend; but there is another interesting group of—

III. *Cases of Rib-Fracture detected on admission into Lunatic Asylums*, in which the discovery of such injuries is due to the medical examination of entrant patients that is now generally made in lunatic asylums in all parts of the world. There are few asylum physicians of any experience who have not met with instructive cases of this kind,[1] and who are not quite alive to the policy of making such entrance examinations, in order to guard themselves or their subordinates against the accusations that are sure to be made in the event of the discovery of such injuries as rib-fracture *subsequent to* admission. Some instructive instances of rib-fracture so detected are given in the Annual Reports of the New York State Lunatic Asylum at Utica. Thus, Dr Gray, who is physician-in-chief of the said asylum, as well as editor-in-chief of the "American Journal of Insanity," reports, among the admissions of a single year, one case of fractured clavicle, one of fractured ribs and sternum, and one of fracture of the arm—all in acute mania. He adds the important particulars that, in no case, were these injuries produced by intentional violence; or, in other words, they were not attributable to mal-usage by attendants, but to accident or self-inflicted injury. In no case did the patient complain of pain or injury; the fact of bone-fracture existing at all being unsuspected either by patients or friends till the medical examination was made by the asylum physicians. "The person who had a fractured clavicle was very wild and boisterous, and moved his arm in every direction; complained of no pain, and challenged those about him to fight. The first day we were unable to bandage him; and, even after we succeeded in this, he tore off the bandages, and tore up his clothing and bedding; *notwithstanding which*, the bone united in the usual period, and without any unfavourable symptoms."[2]

In another year, he describes the following two cases:—"One had, in jumping from a window at home, under delusions, fractured his sternum and clavicle, and driven down his neck into his chest, pushing out the upper portion of chest and vertebral column so as to shorten himself about two inches."[1] The other was a male, æt. 53, admitted in a state of high maniacal excitement (restless and noisy). There were bruise-marks on the chest, and emphysema was rapidly developed. Rib-fracture was suspected, but proper examination of the thorax was rendered impossible on account of his restlessness. He died from hydrothorax. The post-mortem examination proved the correctness of the diagnosis as to rib-fracture, there being five ribs broken on one side and four on the other—the sternum also being fractured.[2]

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[1] *Vide* 32d Report of the Murray Royal Institution, p. 10.

[2] 20th Report (for 1862), p. 15.

Such cases as the foregoing show how unjust and absurd it is to ascribe all rib-fracture in the inmates of lunatic asylums to deliberate *violence by attendants.* I believe that, as a body, asylum attendants lie under most unmerited opprobrium for supposed brutality or roughness in the management of their charges—especially of such as are unusually troublesome by reason of filthy habits, insubordination, assault, destructiveness, mischief, or otherwise. Attendants would not be human, did they not occasionally lose their temper or self-command, and allow themselves to be irritated into acts that they very speedily regret, and for which they have frequently most inadequately to atone. But, even in the exceptional cases in which faults of commission occur, far too little allowance is made for the provocations to which they are subjected. My own experience has led me, on the whole, to be equally surprised and gratified at the forbearance and kindliness they exhibit—a forbearance and self-control infinitely greater than that which is sometimes exhibited by their superiors in office, notwithstanding the professions by the latter—*usque ad nauseam* sometimes—that *their* rule of practice in dealing with lunatics is that combination of all the virtues embraced in the so-called "Law of Kindness!"

Rib-fracture may legitimately be regarded as one of the many fruits of the *non-use of mechanical restraint* in cases where it is really required. There can be no doubt that many, at least of such cases, would never have occurred had the "camisole" (*vulgo*, the old "straight-waistcoat") been timeously employed, or had any other efficient means been used to confine the arms, legs, or body.[3] Since, however, the Conollyan era in the history of Hanwell, it has been deemed culpable in this country to make use of this or other simple *mechanical* means of preventing self-injury or injury to others.[4] There is, and there has long reigned in England, *a tyranny of public opinion* on the subject of non-restraint in the treatment of the insane —a tyranny which, among other bad effects, prevents the superintendents of its asylums acting upon their individual judgment in individual cases as regards the imposition of mechanical restraint.[5]

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[1] 27th Report (for 1869), p. 15.

[2] Utica Asylum Reports, 27th (for 1869), p. 77.

[3] *Vide* 37th Report of the Murray Institution, p. 12.

[4] *Vide* 39th Report (1865-8), p. 15.

[5] *Vide* Dr Kellogg, of the New York State Asylum at Utica, in his Notes of a Visit to the Asylums of Europe: American Jour. of Insanity for Jan. 1860

The substitution of *personal* for mechanical restraint—restraint by *attendants* instead of by mechanical appliances—has led to incessant personal struggles, during which it would have been strange had rib-fracture not occasionally occurred in common with other injuries of even a more serious character. The terrorism which is in England exerted on asylum authorities by the bugbear of public opinion, the anathemas of the fourth estate, and the censorship of the Board of Lunacy, is a very real one[1]—in the eyes especially of strangers, who can contrast it with the manly independence that exists on the same subject, as regards both action and opinion, in America! England boasts of being (as regards the treatment of its insane) the Country of Non-restraint; but it will repudiate, I do not doubt, the addition, that it is equally entitled to the designation of the Country of Fractured Ribs; and it will, I dare say, indignantly deny that there can be any proper connexion between the non-use of mechanical contrivances against self-injury, or against the provocation of attendants beyond the bounds of their self-command, and the frequency of rib-fracture, in common with many minor or major injuries!

Nevertheless, I believe that, in relation to the causation of such injuries, we must regard, as the *real offenders*, not the poor defenceless attendants, who are at present saddled with the whole of the guilt: but the following categories of persons or institutions, viz.:—

1. Such men as Conolly and Gardiner Hill, who have promulgated the absurd and mischievous dogma, that in *all* cases mechanical restraint is unnecessary and improper.[2]

2. All who have adopted this dogma of *non-restraint*, who have

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[1] That it is real, is admitted by those of the English alienists themselves who are manly enough to speak out—on a subject on which I have found them more given to whisper with bated breath, as if it were treason even to breathe aspirations or opinions contrary to that worst of all tyrants or despots —Public opinion! One English asylum physician, writing me in 1869, says: —"I quite agree with your remarks about the *terrorism* that the Lunacy Commissioners exercise in England. *All independence* is really extinct now in this department" (lunacy practice). Another, writing still more recently (1870), remarks:—"In the present state of feeling on the subject of restraint and cruelty in asylums, one can scarcely be too much of a *coward* if he would avoid imputations, whose groundlessness is only equalled by their ridiculousness. . . . On the head of what might be called the *restraint system* as applied to medical men" (engaged in lunacy practice) "see the correspondence between Dr Sheppard and the Commissioners in Lunacy, and you will easily understand how difficult it is, when there is so much spurious sentiment abroad, to avail one's self of a useful means of treatment, or of the exercise of a little native discretion!"

[2] "The *Entire* Abolition of Mechanical Restraint in the Treatment of the Insane," is the title of a volume published by Dr Gardiner Hill in 1857 (London), which contains the following enunciation of his views:—"Restraint is *never* necessary, *never* justifiable, and *always* injurious in *all* cases of lunacy whatever!" (p. 52.) Now Conolly professes to have followed Hill, and the school which Conolly may be said to have founded thus adopts as its creed a proposition, which is (to say the least of it) much too sweeping and dogmatic, as I hope elsewhere to be able to prove.

imbibed the extreme views of Conolly and Hill, constituting them their creed *quoad* the management of the insane: including especially—

(*a.*) The general public.
(*b.*) The general newspaper press, with certain exceptions.
(*c.*) A section, at least, of the medical press, such as the "Journal of Mental Science"[1] and the "Lancet."[2]
(*d.*) The Board of Lunacy.

I do not, however, further enter at present upon this delicate subject, having collected materials for a separate essay on "The Theory and Practice of Non-restraint in the Treatment of the Insane."[3]

ARTICLE VIII.—*On the Action of the Cobra Poison.* By J. FAYRER, M.D., F.R.S.E., C.S.I.; Surgeon, Bengal Army; Professor of Surgery in the Medical College of Bengal.

(*Continued from page* 340.)

TWENTY-SIXTH SERIES.

Present—Drs Fayrer and Ewart, and Mr Sceva.—23d April 1870.

EXPERIMENT No. 1.—The external jugular vein of a dog was exposed, and liquor potas. ʒss., water ʒiii. injected with the hypodermic syringe at 3.14 P.M. At 3.28, the dog seemingly unaffected by the alkaline injections, two drops of poison, squeezed out of the poison-glands of a cobra (*Bansbunniah keautiah*), sickly and casting its skin, were diluted with water and injected hypodermically into the dog's thigh. This snake had been deprived of its fangs, and could not bite. The dose of poison was very mild. 3.35.—The dog seems restless and uneasy—is whining. 3.36.—Apparently very slightly affected. 4.10.—Is restless; sits down, looks listless and tired. 4.15.—Liquor potas. ʒss., aq. ʒi. injected into jugular vein; no effect produced, the dog did not seem to feel it in any way. 4.20.—Liquor potas. ʒss., aq. ℥ii. poured down its throat. 4.26—Restless and uneasy; is sick, slightly convulsed; respiration hurried; sardonic grin. 4.30.—Cannot walk; profusely salivated, defecated; more solution of liquor potas. administered. 4.35.—Tries to rise; falls over, staggers; all the symptoms of snake-poisoning now rapidly increasing; spasmodic action of diaphragm. 4.37.—Much convulsed. 4.40.—Still much convulsed and profusely salivated; gasping respiration. 4.42.—Respiration ceased. 4.45.—Dead, in an hour and a half.

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[1] The narrow views of the latter on this subject are in marked contrast to the more liberal and enlightened ideas of its predecessor and rival,—the "Journal of Psychological Medicine," as edited by Dr Forbes Winslow.

[2] In favourable contrast are the ideas of the "Medical Times and Gazette," as expressed (*e.g.*) in vol. ii. for 1868, p. 365; and in vol. i. for 1869, p. 254.

[3] Meanwhile my opinions regarding the *Disuse of Mechanical Restraint*, and the *substitution* for it of *Restraint by Attendants*, may be found expressed in (1.) the 11th Report of the Board of Lunacy for Scotland, Appendix, pp. 70 and 272. (2.) The following Reports of the Murray Institution:—39th, p. 15; 37th, p. 12; 32d, p. 13. (3.) The following separate papers:—(*a.*) On "Temporary Insanity," Edin. Medical Journal, vol. xi. (1865), p. 449. (*b.*) On "Typhomania," Edin. Medical Journal, vol. xiv. (1868), p. 333.

The body was opened at 5 P.M. Blood in the cavities of the heart fluid, but coagulated firmly on being removed.

EXPERIMENT No. 2.—About half a grain of cobra poison kept in a glass tube since December 1869 was diluted with water, and a hypodermic syringeful of the solution (about 20 drops) injected into a fowl's thigh at 3.53 P.M. The poison had coagulated into a white paste; was very fœtid, and not readily soluble in water, as the solution, after being well rubbed, was turbid and flocculent. 4 P.M.—The fowl is lethargic, and crouches; but easily roused, and runs about looking as bright as ever.

Twenty drops of a solution of liquor potas., one part to two of water, injected into the fowl's thigh. The legs were soon observed to be weak. 4.5.—Cannot stand, the legs are extended and seem almost paralyzed. 4.7.—Legs powerless, but its eye is bright, and its head does not droop, as is usual in snake-poisoning. 4.14.—Another syringeful of the liquor potas. solution injected into the thigh. 4.20.—Lies on its side, legs quite powerless, but eyes still brighter; head raised; it seems perfectly conscious. 4.30.—In the same condition. 4.40.—Another syringeful of the solution of liquor potas. injected—no apparent change. 4.50.—Eyes still bright; head does not droop, cannot move. 5 P.M.—In the same condition. 6.15.—Unable to walk. 7.11.—Attempted to walk, but was unable to do so; fell with legs extended in opposite direction; remained in this state till 7.41 P.M. 9 P.M.—Lying on its side with only wings extended, and legs outstretched. *24th*, 5.30 A.M.—Lying much as it was at 9 P.M. yesterday. 9.15.—Convulsive movement. It did not die till 1.35 P.M., or about twenty-two and a half hours.

EXPERIMENT No. 3.—A syringeful of the same liquor potas. solution was injected into a fowl's thigh at 4 P.M. of 23d April. 4.10 P.M.—No apparent effect produced on the fowl by the injection, it is as lively as ever. A syringeful of diluted cobra poison, the same as in last experiment, injected into a fowl's thigh. 4.17.—Legs seem paralyzed as in the last case, but the eyes are bright, and the head not drooping, as in Experiment 2. 4.30.—In the same state, legs quite paralyzed. 4.40.—Another dose of liquor potas. solution, of same strength, injected into the thigh. 4.42.—The fowl was slightly convulsed after the last injection, crouching, with its head resting on its beak; there were jerking convulsive movements of the tail. 4.50.—Lethargic, but eye bright, breathing slow and steady. Closes the eyes, but when roused opens them again. 5 P.M.—Head slightly drooping in addition to other symptoms. 6.15 P.M.—Unable to walk. 6.15.—Lying on floor, with legs and wings extended. 7.30.—Convulsive movements of wings and body. 7.41 P.M.—Dead, in three hours and forty minutes.

EXPERIMENT No. 4.—About half a grain of the same cobra poison as that used in Experiments 2 and 3 injected into a full-grown but rather sickly-looking dog's thigh, at 3.6 P.M. 9.10.—Is not apparently in any way affected. 4.25.—Does not appear in any way affected. 4.35.—Not in the least affected by the poison. Another syringeful, twenty drops of the poison solution, injected. 4.45.—The dog appears sluggish, but it may be fright; not otherwise affected. The jugular vein was now exposed, and liquor potas. ʒi., aq. ʒii. was injected. No apparent effect produced by this injection into the jugular vein. The dog on being released moved about in the usual way.

4.50.—Liquor potas. ʒss., aq. ℥ii. poured down the throat. 5 P.M.—The dose was repeated. The dog seemed inclined to vomit, but did not do so; not otherwise in the least affected. 6.15 P.M.—No change. 9 P.M.—Appears restless, changing position frequently. 9.30 P.M.—The same. *24th April*, 9 A.M.—Looks well, not lethargic. 1 P.M.—The same. Midnight, the same. *25th April*, 8 A.M.—Seems well and unaffected. 1 P.M.—No change, forty-six hours after the experiment.

The poison used in these experiments was necessarily weak. In the first it was taken from a cobra that had lost its fangs, and when squeezed out in a small quantity, it was probably mingled with mucus. It produced the usual effects, however, in a dog, and death occurred in an hour and a half.

The liquor potas. was administered by injection into the jugular vein, and into the stomach; no apparent result followed, and the dog died in ninety minutes, with the usual symptoms of cobra poisoning: the blood coagulated firmly when removed from the heart and large vessels after death.

In three other experiments, old and decomposed poison, removed from the snake four months previously, and which had coagulated into an exceedingly offensive white paste, very insoluble in water, was used, and in small quantities. In the case of the full-grown dog no symptom was produced by the second day. To test the effect of the liquor potas., it was injected into the jugular vein, and administered by the mouth. No change occurred, and forty hours after the experiment the animal was unaffected. In the cases of the two fowls, one died in three hours forty minutes, the other in twenty-two hours; and in them the symptoms were somewhat different from those usually produced on fowls by the cobra poison.

One of the earliest symptoms in ordinary cases of cobra-poisoning of fowls is drooping of the head, which is supported by the point of the beak resting on the ground; the bird frequently raising its head with a sudden start, until at last, overwhelmed by the action of the poison, it falls over and dies, frequently in convulsions. The drooping of the head was not observed; the eye was bright, and the head erect almost to the last, whilst the legs were quickly paralyzed.

In those cases the liquor potas. was also given by hypodermic injection, but with no apparent result, except in one case slight convulsions occurred, though I am not at all sure they were caused by it. Death in both cases was protracted, in one excessively so; but this I attributed to the weakened and diluted state of the poison. Is it possible that the difference in its action may have been due to the changes that had taken place during decomposition? At all events, though much weakened, and probably altered in its action, it still preserved, to some extent, its lethal properties; for, although the strong and full-grown dog was not apparently affected, the smaller and more sensitive birds were.

The conclusions I draw from these experiments are,—

1*st*, That the poison of the cobra retains its activity even when the fangs have been destroyed, and the gland perhaps for a time inactive. 2*d*, That keeping and decomposition of the poison does not destroy, though it weakens or alters its poisonous properties. 3*d*, That the injection of diluted liquor potas. is not necessarily attended with any danger, or even bad symptoms, when injected into the jugular vein hypodermically; and that the result of these four experiments, which are not by any means conclusive, does not show that it has any antidotal effect on the action of the poison; but on this subject further evidence is needed.

25th April.—Two young fowls were injected in the thigh with the same old cobra poison as in the last experiments. 23*d*.—The poison was inserted by the hypodermic syringe at 3.55 P.M. 5.10 P.M.—No change. 7 P.M.—No change. 9.15 P.M.—The legs which were injected are lame and stiff in both fowls. 26*th*, 5 A.M. —No symptoms of poisoning. 1.20 P.M.—One fowl walking about quite well. The other appears dull and drooping. 27*th*, 6 A.M.—No change. 1 P.M.—Both fowls walking about in the cage. 29*th*. —They are quite well.

The effects of the poison on both were most feebly manifested. The liquor potas. was not used.

TWENTY-SEVENTH SERIES.

Present—Drs Fayrer and Ewart, and Mr Sceva.
30th April 1870.

EXPERIMENT No. 1.—A solution of liquor potas. one part, water three parts, was prepared.

2.55 A.M.—One drachm of the above solution was injected into the external jugular vein of a small dog. The dog seemed rather sluggish after the injection, but at 3.7 P.M. was as usual, and seemed quite well at 3.9 P.M. He was bitten on the fold of the thigh by a young cobra about one-third grown. It was made to close its jaws very reluctantly, and its bite was very doubtful; no marks of blood were visible. 3.15 P.M.—It seemed rather sluggish, apparently frightened; twenty drops of the liquor potas. solution were hypodermically injected into the thigh. This seemed to cause sharp pain; the place where the cobra was supposed to have bitten was washed with liquor potas. 3.24.—Sluggish; lies down again when it has been made to stand. Twenty drops more of the liquor potas. solution injected into the thigh. 3.27.—Stretching out the hind legs. 3.29.—Rises and sits down again. Thoracic muscles seem contracted. 3.34.—Seems to walk with difficulty when roused; abdomen seems distended. 3.43.—Lies quite quiet. 4.6.—In the same conditions. Hind legs seem weak. Lies with the limbs extended. 4.15.—Walks about, when roused sits up, but seems giddy, head moves from side to side. 4.21.—Twenty-nine drops of the solution injected seems to give, as before, considerable pain; it licks the puncture. 4.50.—Another twenty drops injected. 8.30. —No change. 9.30.—Lying down, breathing naturally; no symptoms of poisoning now present.

1st May.—The dog is living, is not in any way affected. *3d.*—The dog remained quite well.

EXPERIMENT No. 2.—A large dog had the jugular exposed, and liquor potas. ʒi., water ʒiii. was injected at once into the vein.

3.10.—The same young cobra was made to close its jaws in the dog's thigh, but there was no evidence of its biting. 3.30.—Twenty drops of the solution were injected into the thigh. The dog was not in any way affected, and remains, on the 2d May, quite well.

These two experiments are very instructive, for they show in the first experiment that the dog was, though bitten, so slightly poisoned that no evil results followed. In the second no effect was produced at all. The cobra was very young and small, its fangs were small, and the poison small in quantity, and not active. This, no doubt, is the way in which recoveries take place when there is no doubt as to the person having been bitten, as the snake has been seen. That the snake had more poison was proved by its effect on a fowl, which is much more sensitive to the poison than the dog.

The evidence as to the value of the liquor potas. is not of much significance; for if it appears in its favour in the case of the dog, it is the reverse in that of the fowl.

I propose to give it further trial in the case of an animal bitten by a full-grown and vigorous cobra, and also by injecting the poison mixed with the liquor potas. as I did with the liquor ammonia.

EXPERIMENT No. 3.—A fowl was bitten in the left thigh by the the same young cobra; it was made to close its jaws, and the fangs compressed in the part at 3.27. P.M. 3.32.—Not in any way affected. 3.52.—Not the least affected, twenty-five minutes after being bitten. 4.5.—Feathers of back slightly ruffled; purged, otherwise seems bright. 4.11.—Apparently beginning to droop a little, but when roused seems all right and runs about vigorously. The wattles look less bright than they did. 4.15.—Crouching, but rises and runs about when roused. 4.16.—Twenty drops of the liquor potas. solution injected into the thigh. 4.20.—Drooping, rests its beak on the ground. 4.22.—It droops more. 4.50.—Restless; changes its position frequently. Wings drooping. 8.13.—It gradually drooped and died. The extreme weakness of the poison was proved in this case by the fact that it was twenty-five minutes before the faintest indication of poisoning appeared. It generally, with the ordinary cobra, begins within a minute. Death occurred in four hours and forty-six minutes.

4th May 1870.—Poison removed from a large Gokurrah (spectacled cobra), and mixed with liquor potas. two parts of each: of this solution about ten drops were injected into a dog's thigh at 11.53 A.M. 12.10.—Restless. 12.11.—Quite lively, but staggers on the hind legs. 12.13.—Does not seem more affected. 12.21.—Sluggish. Another injection of one drop of poison mixed with three of liquor potas. injected into the thigh. Is sluggish, staggers in his gait. 12.29.—Thirty drops of a solution of equal parts of water and liquor potas. injected into the thigh. 12.30.—Convulsed. 12.34. —Purged, unable to move, is paralyzed. 2.37.—Convulsed. 12.40. —Dead, in forty-two minutes.

The body was opened about half an hour after death. The blood was fluid, but coagulated after removal; not so rapidly though, I think, as usual.

A syringeful of the blood was injected into a fowl's thigh; the result of this experiment will be noted.[1]

EXPERIMENT No. 2.—Equal parts of poison from the same cobra and water were mixed, and about 10 drops injected into a full-grown dog's thigh at 11.54 A.M. 12.1.—Not affected. 12.10.—Very sluggish, deep and hurried breathing. 12.13.—Can hardly stand; gradually became paralyzed. 12.18.—In convulsions. 12.20.—Purged, dying. 12.22.—Dead, in twenty-eight minutes.

This experiment proved that the cobra poison was active, and not injured by dilution with water. The other experiment proves that it is not neutralized when mixed with liquor potas.

EXPERIMENT No. 3.—A solution of the same cobra poison with equal parts of water. Two drops of this solution injected into a fowl's thigh at 11.55. 11.58.—Fowl drooping, point of beak resting on the ground. 12.2.—Nearly dead. 12.7.—Dead, in twelve minutes.

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[1] The fowl did not die.

Experiment No. 4.—One drop of poison from the same cobra; three drops of liquor potas. injected into a fowl's thigh at 12.18. In less than thirty seconds the fowl fell over in convulsions; it remained in a perfectly unconscious condition, with occasional convulsive movements of the wings, until 12.24. Death occurred in six minutes.

In this case the fowl was of the same size as in Experiment No. 3, about two-thirds grown. Death occurred more rapidly after inoculation of the poison mixed with liquor potas. than after that of poison mixed with water.

The blood of the bird was examined at 12.40, sixteen minutes after death; it coagulated firmly when removed from the body.

Experiment No. 5.—One half drop of cobra poison and two drops of liquor potas. injected at 12.20 into a fowl's thigh. 12.24.—Crouching. 12.26.—Drooping, the usual sign of the beak resting on the ground. 12.30.—Dying apparently. 12.31.—Convulsed. 12.38.—Dead, in eighteen minutes. Body examined: blood formed a firm coagulum.

The dose of poison was very small, it was barely half a drop, with two full drops of liquor potas.

Experiment No. 6.—A fowl had about forty drops of the solution of liquor potas. one part, water two parts, injected into the thigh at 12.45. The legs almost immediately became paralyzed, or rather rigidly extended. It lay on the ground with a scared look; breathing very much hurried; beak open, feathers ruffled. It remained in this state for several hours, and gradually recovered on the 5th May at 8 A.M. It was alive and well, and nearly regained the use of its legs.

Experiment No. 7.—The same quantity of the liquor potas. solution injected into a fowl's pectoral muscles at 12.47. The bird immediately assumed the same scared aspect, the feathers staring, the eye wild, and the beak wide open, with very hurried respiration. It remained in this way for some time, and in about twenty minutes twenty drops of the blood of the dog that died from the mixture of cobra poison and liquor potas. were injected into its thigh.

It remained in the same condition for some time but gradually recovered, and on the morning of the 5th May was quite well. The object of these two experiments was to test the effect of the liquor potas. when injected. The symptoms were very well marked, and seemed to cause great distress, though no fatal consequence resulted. So far the results of the trial of liquor potas. have been unfavourable; the fact of the poison mingled with the liquor potas. before inoculation proving fatal, seems all but conclusive against it as an antidote.

TWENTY-EIGHTH SERIES.

Present—Drs Fayrer and Ewart, and Mr Sceva.
14th May 1870.

Through the kindness of a friend, I have received a phial of dark-coloured, strongly ammoniacal smelling fluid, sent by Dr Gunston of H.M.S., who says:—"I send the Cape antidote for snake-bites; it may have deteriorated[1] in quality, as I bought it in the Cape in 1864. I never had occasion to use it, but the rule is, I believe, to scarify the wound and rub some of the mixture into it, and also to swallow two or three drops. I am not certain of the quantity in either cases, but experiment would easily decide that. I know for certain that bites from the Cape black cobras have been cured by it, and there every one carries it about when out shooting; it is firmly believed in."

One object of the following experiments was to test this antidote. The fluid was in a small phial carefully covered with thick leather; it was hermetically sealed, and when the stopper was removed a dark-coloured, clear, and very strongly ammoniacal fluid was found.

EXPERIMENT No. 1.—A fowl had the feathers removed from its thigh, and was bitten by a gokurrah (spectacled cobra) with only one fang, in the right thigh, at 3.25 P.M. The single puncture was immediately deeply scarified, and some drops of the fluid well rubbed into the wound. A drop of the fluid, diluted with a few drops of water, was then poured down the bird's throat; but at 3.26 the fowl was already paralyzed. At 3.28 it was quite dead. The blood of this fowl, on being removed from the heart a few minutes after death, coagulated firmly.

EXPERIMENT No. 2.—A half-grown pariah dog was bitten in the thigh by the same cobra at 3.30 P.M. In this case the eau-de-luce was again tried. Half a drachm sufficiently diluted with water given at 3.33 P.M. 3.34.—The dog shows symptoms of poisoning: he is restless and uneasy; lies down; rises again; breathing hurried. Tries to walk; staggers; hangs his head; frothing at the mouth. 3.38.—Another half-drachm of the eau-de-luce administered. 3.40.—Has lain down, and is unable to move, evidently dying. 3.42.—Heart still beats, but has ceased to breathe. 3.43.—Dead, in nine minutes. The blood of this dog coagulated firmly after death. The so-called antidote obviously had not the least effect.

EXPERIMENT No. 3.—A fowl was bitten in the thigh by the same cobra at 3.46 P.M. The wound was immediately scarified, and some drops of the Cape remedy well rubbed in. Two drops well diluted were immediately administered by the mouth. The fowl was convulsed almost immediately, and was dead in less than two minutes. The blood of the fowl, exposed in a watch-glass after death, became of a very florid colour, and coagulated very imperfectly, after fifteen or twenty minutes. There was some doubt about the watch-glass having had ammonia in it, but the attendant declares it was thoroughly washed.

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[1] The bottle was so carefully stoppered and sealed, and the ammoniacal odour was so strong when opened, that I should think it could not have deteriorated by keeping.

EXPERIMENT No. 4.—A fowl was bitten by a cobra with one fang in the thigh at 4.5 P.M. 4.5,30.—Legs paralyzed; feathers ruffled. 4.7.—Dying, convulsed. 4.8.—Dead. Blood drawn into three vessels: one a watch-glass, the second an ounce measure glass, the third a flat glass vessel (top of a jar). Two or three drops of the Cape antidote (ammoniacal) put into the watch-glass. Two or three drops of eau-de-luce put into the measure glass. Into the third nothing. At 4.49 the unmixed blood was firmly coagulated. The blood mingled with eau-de-luce coagulated much sooner, and became very dark. The blood mixed with the Cape antidote remained bright red, and did not coagulate.

EXPERIMENT No. 5.—A fowl was bitten in the thigh by the same cobra, now somewhat exhausted, at 4.44 P.M. 4.45.—Dead, with the usual symptoms. At 4.52 P.M., blood drawn into three watch-glasses, a few drops in each. No. 1. Three drops of the Cape antidote × blood. No. 2. Four drops of eau-de-luce × blood. No. 3. Nothing × blood. These were placed aside and watched for some hours. Nos. 1 and 2 remained fluid. No. 3 coagulated imperfectly.

There are some apparent contradictions in these two experiments. In the first, the blood coagulated firmly when mixed with eau-de-luce. In the second, it remained fluid. Has the shape of the vessel anything to say to it? In the first, it was deep and narrow; in the second, flat and shallow. I do not know that the results of experiments on the coagulability of the blood after death, under any circumstances, is of much import, but I record those as they were made.

TWENTY-NINTH SERIES.

Present—Drs Fayrer, Chevers, and Ewart, and Mr Sceva.
4th June 1870.

EXPERIMENT No. 1.—A small pariah dog was brought fully under the influence of alcohol; several ounces of brandy had been given, diluted with water, in divided doses, during the morning. He was bitten in the thigh by a young, one-third grown gokurrah, at 3 P.M. The snake was with difficulty made to close its jaws, and the bite was doubtful. At 3.10.—No symptoms of poisoning. The dog was bitten in the thigh by a *keauteah* full grown, and was very rapidly affected by the poison; began to stagger; more brandy was administered. 3.15.—Dog convulsed. 3.16.—Dead.

It has been suggested that persons in a state of intoxication from alcohol are less susceptible to snake poison, and that brandy administered to those bitten is useful. I have no doubt it is so to a certain extent; but this experiment seems to show that it can do but little in preventing the fatal effects of the poison in an animal, at all events.

EXPERIMENT No. 2.—At 3.20 P.M. three drops of poison, recently taken from the same *keauteah* mentioned in the last experiment, were put into a fowl's mouth, being brought in contact with the lining membrane. 3.28.—Not affected. 3.40.—Not affected. 3.56—Fowl is drowsy, eyes closed, crouching, cannot stand, resting the point of the beak on the ground. 4.12.—More drowsy. 4.20.—Convulsed. 4.24.—Peculiar convulsion of neck. 4.40.—Lies on its side, appears dying. 5.—Still alive, but completely paralyzed. 5.20.—Violently convulsed. 5.43.—Dead.

EXPERIMENT No. 3.—Half a drop of poison from the same *keauteah* put into a dog's eye at 3.25 P.M. Immediate excitement resulted; the dog began to rub the eye with his fore-foot, with excessive lachrymation. The eyelids began to swell, and the conjunctivæ to be chemosed. 3.28.—Eyelids much swollen. The dog is evidently affected constitutionally, he is drowsy. 4 P.M.—Eyelids swollen, with great tension. The conjunctivæ in a state of intense chemosis, very drowsy. 4.12.—Lies quiet. 4.40.—Dog was drowsy and partially paralyzed; when raised on his legs he cannot stand, falls over. 4.45.—Convulsed. 5.5.—Convulsed. 5.30.—Respiration ceased, heart's action continuing, but irregularly. 5.34.—Dead, in two hours and nine minutes.

This dog had been taking liquor arsenicalis for some time before the poison was introduced: he was in excellent health and spirits at the time. The arsenic does not seem to have been in any way prophylactic.

EXPERIMENT No. 4.—About four drops of poison from the same *keauteah* were diluted with four parts of water, and introduced into a dog's stomach at 3.50 P.M. No effect was manifested by 3.58, when about eight or ten drops of poison taken from a large gokurrah (spectacled cobra) were put into the dog's mouth, being dropped on to the tongue and roof of the mouth. 4.2.—The dog runs about uneasily and is restless, is evidently nauseated, tries to be sick. 4.8.—Retching violently. 4.11.—Vomited the contents of his stomach, followed by a quantity of frothy mucus. Mouth examined, no change apparent in the mucous membrane. 4.15.—Involuntary defecation and micturition commencing; is very restless; staggers; head rolling from side to side. 4.26.—In convulsions. 4.28.—Dead, in thirty-eight minutes. The body was examined soon after death. The blood flowed freely from the heart and great vessels, and formed into a peculiarly firm coagulum rapidly. The stomach and œsophagus laid open, rugæ of stomach deep pink, mucous surface of gullet quite blanched, tenacious and frothy mucus adhering to surface of stomach.

The three last experiments quite settle the question of poisoning by absorption of the poison through a mucous surface. In all three animals death resulted rapidly, and with all the symptoms of snake-poisoning well marked. There could be no doubt of the absorption. The greatest care was taken not to abrade the surface; indeed, nothing was done that could have abraded the surface; and it was carefully noted at the time that no lesion had taken place. It must therefore be admitted that snake poison may be absorbed through a mucous membrane, and that it is dangerous to apply it to the surface, and that the sucking of a cobra bite might be followed by symptoms of poisoning. This is quite contrary to hitherto expressed opinion, and confirms what I have observed and noted in previous experiments.

EXPERIMENT No. 5.—The peritoneal cavity of a fowl exposed by a small carefully-made incision, no blood lost; a drop or two of gokurrah poison then applied to the peritoneal surface at 3.53 P.M. The wound was closed, and the fowl released; it ran about for a moment or two, and then began to droop. 3.58.—Drooping, crouching, nodding its head, resting the beak on the ground. 4 P.M.—Symptoms increasing rapidly. Fowl convulsed and fallen over. 4.1.—Dead, in eight minutes. This experiment proves that the peritoneum also absorbs the poison; care was taken that the poison should not touch the slight wound; it was spread on the peritoneal surface. Symptoms of poisoning came on rapidly, and death occurred in eight minutes. This also tends to confirm the absorption of the poison through an unbroken membrane.

EXPERIMENT No. 6.—A full-grown pariah dog was bitten in the thigh by the same *keauteah* from which the poison had shortly before been extracted, at 4.43 P.M. Immediately after being bitten, the external jugular vein was exposed, and liq. potas. ʒi., aq. ʒii. injected into the vein. No effect produced by the injection. 5 P.M.—Hind legs weak; staggers; restless; lies down, and rises again; defecations; falls over, and is almost paralyzed; tries to use legs, fails, and he falls over. Twenty drops of liquor potas. injected hypodermically into the thigh; thirty drops of eau-de-luce with water given by the mouth. Convulsed. 4.5.—Dead, in twenty-two minutes.

In this case the liquor potas. seemed to accelerate the action of the poison. The snake must have been all but exhausted when he bit, for all the poison that could be got had been squeezed out of his glands not two hours before. There were no indications of poisoning for ten or twelve minutes after the bite, and it generally begins sooner than that; but the poison's action having commenced, its progress was fearfully rapid, death taking place in about twelve minutes after the first indication of poisoning presented itself. The liquor potas. may not have done any harm, but it certainly did no good.

THIRTIETH SERIES.

Present—Drs Fayrer, J. Ewart, and J. Anderson, and Mr Sceva.—8th June 1870.

An ophiophagus elaps, nine feet six inches long and seven inches in circumference, arrived from Rangoon yesterday. It seemed in good health, but sluggish, and indisposed to bite even when roused; is just about to cast its epidermis.

Experiment No. 1.—At 11.50, a pariah pup, one-fourth grown, was bitten in the thigh, the snake being made to close its jaws on the part. 11.51.—The dog much excited, but apparently not in any pain. 11.52.—In a state of general tremor; defecation. 11.55.—Fallen over paralyzed. 11.56.—Convulsed. 11.58.—Dead, in eight minutes.

The body was examined soon after death. The blood coagulated in a minute and a half after removal from the great vessels into a peculiarly firm clot. The dog never gave the slighest indication of suffering; its death was very quiet, and free from pain.

Experiment No. 2.—A full-grown pariah dog bitten on the thigh by the same ophiophagus at 12. The snake was made to close its jaws as before on the part. 12.2.—Staggers, being weak in the hind leg. 12.4.—Standing up, but seems lethargic; head drooping; no expression or sign of pain; when made to walk, does so with difficulty; limbs seem weak, or to be in a state of ataxy. 12.9.—In the same condition; breathing deep; head drooping to the ground; seems unconscious of anything; complete locomotor ataxy. 12.20.—Limbs now seem paralyzed; singular freedom from any expression or look of suffering. 12.26.—Slight convulsive movement of muscular system generally. 12.30.—Lies quite motionless; expression of eye natural. 12.31.—Slight convulsions of muscular system generally. 12.34.—Involuntary discharges; heart still beats, no respiration, convulsive waves over the whole body. 12.37.—Appears dead, but the heart still acts irregularly. 12.38.—Dead, in thirty-eight minutes.

There was no salivation in either of these dogs. The symptoms were like those of cobra-poisoning; if any difference, death was quieter, and free from suffering. Body examined after death: blood coagulated very firmly on removal from the body. The snake is about to shed its epidermis; it is sluggish, and may be sickly, but yet the poison was very active; however, so far as these two experiments show, it is not more active or fatal than that of a full-grown vigorous cobra.

THIRTY-FIRST SERIES.

Present—Dr Fayrer and Mr Sceva.

13*th June.*—This morning the same ophiophagus elaps was made to shed its poison into a shell, by biting through a leaf stretched across the shell. The poison is a clear golden orange-coloured fluid, and the quantity must have been nearly half a drachm. The snake has just shed its epidermis; it has not eaten for several days, but seemed tolerably well, though somewhat thin. It was handled by two men, one seizing it round the neck, the other by the body near the tail. It is very powerful, but they seemed to have no difficulty in controlling it. At noon I made the following experiments with the poison:—

EXPERIMENT No. 1.—Five drops of the poison were injected with the hypodermic syringe into a dog's thigh at 12.14. 12.17.—The leg seems weak, partially paralyzed; he walks with difficulty. 12.22.—Sluggish, very weak in that hind leg. 12.25.—Deep breathing, seems lethargic, lying down; no salivation, no appearance of distress; can walk when roused, but staggers and seems drowsy. 12.32.—Very lethargic, lying down; head fallen over. 12.34.—When roused, can still walk with a tottering gait; lies down; head falls over. 12.42.—Lying down; limbs convulsed. 12.43.—Involuntary micturition and defecation. 12.48.—Heart beats still irregularly, but respiration has ceased. 12.50.—Heart's action still felt, but it is very slow and irregular. 12.51.—Dead, in thirty-seven minutes.

There was in this, as in the other dogs, no sign of suffering; a lethargy seemed to gradually steal over the animal, until it becomes unconscious, and then a few convulsive moments precede death. There was no salivation, as so generally occurs in cobra-poisoning.

EXPERIMENT No. 2.—Two or three drops of ophiophagus poison were injected into a fowl's thigh at 12.16. 12.17.—Leg weak. 12.20.—Crouching. 12.22.—Head falls over, beak resting on the ground; wings drooping. 12.24.—Paralyzed; attempts to rise, falls over. 12.25.—Springs from the ground in convulsions; comb and wattles have become livid. The brilliant red colour is gone. 12.28.—Convulsed. 12.30.—Dead, in fourteen minutes.

EXPERIMENT No. 3.—Three drops of the same poison injected into a fowl's wing at 12.20. 12.22.—Crouching. 12.25.—Runs about, but is weak. 12.26.—Drooping, beak resting on the ground. 12.28.—Almost paralyzed. 12.30.—Fallen over. 12.32.—Slightly convulsed; sprang from the ground once or twice. 12.33.—Dead, in thirteen minutes.

EXPERIMENT No. 4.—Two drops of ophiophagus poison diluted with twenty of water, were injected into a fowl's thigh at 12.38. 12.42.—Drooping; falls over, beak resting on the ground. 12.45. —Springs from the ground, falls as though dead. 12.47.—Dead, in nine minutes.

In this case, diluting the poison with water made it more active, for it killed in nine minutes; whereas a larger quantity of poison undiluted, killed in thirteen to fourteen minutes.

EXPERIMENT No. 5.—One drop of ophiophagus poison, four drops of liquor potas., and eighteen drops of water, were mixed, and then injected at 12.42 into a fowl's thigh. 12.45.—Limps on injected leg; falls over. 12.47.—Convulsed. 12.50.—Convulsed. 12.54.—Dead, in twelve minutes. Convulsive springs from the ground less violent than in the last case.

The liquor potas. had no antidotal effect. It seems to me almost conclusive that liquor potas. does not destroy the activity of the poison. In this case, there was only a single drop of poison to four drops of liquor potas. and this was diluted with eighteen drops of water. The fowl died in twelve minutes, that is, two minutes sooner than one of equal size, that had been injected with three times as much of the poison undiluted. So far, death from the poison of this snake seems quieter, and attended with less suffering than from that of the cobra, though with very much the same symptoms generally.

Part Second.

REVIEWS.

Twelfth Annual Report of the General Board of Commissioners in Lunacy for Scotland. Edinburgh: Printed for Her Majesty's Stationery Office by Thomas Constable: 1870.

THE Annual Report of the Scottish Commissioners in Lunacy has at length been published, and contains matter above the usual average of interest. It, however, is remarkable for one fault, which might surely be avoided, as it tends to considerable confusion in comparing these Reports with the Commissioners' or Inspectors' in other countries. The Commissioners say that it is practically impossible to get lunacy returns from inspectors of poor, in consequence of which they have to give the statistics of lunacy for the year previous to that of which they are writing! Thus, the present report, though dated the 25th February 1870, gives the general statistics of lunacy for the year 1868. In other words, as this report, which now lies before us, is not in the hands of the public before the end of June 1870, and as the first part of its information is entirely concerning the year 1868, all the news we derive from it about that very interesting public question, the growth of lunacy, and the increase of pauper lunacy, is eighteen months old. Surely, if the Board of Lunacy has not the power to enforce inspectors of poor to make trustworthy returns in the course of a twelvemonth, the sooner the powers of that Board are increased by its amalgamation with the Board of Supervision the better. The confusion is the more apparent, when it is remembered that, while the first half of the report relating to the general statistics of lunacy is eighteen months old, and refers to 1868, the latter part, relating to asylums and other institutions for the insane, is only six months old at the time of publication, and refers to the year 1869. This, obviously, renders any comparison of mortality very unreliable.

It appears that in 1868, or at the 1st January 1869, there had been an increase since 1858 of officially reported lunatics of 1413 cases. It is still an open question, however, that this argues an increase of mental disease. We cannot help thinking, for our own part, that insanity must be on the increase, and that it is impossible that this large augmentation of numbers is entirely due to a more efficient system of supervision than there existed before the days of the Lunacy Board.

Against this large augmentation of numbers we have to set off the discharges and deaths in asylums, etc. And here, again, we have to deplore the necessity of including two years in one report. We have as yet been talking of 1868; now we have to take 1869. It appears that in 1869 the proportion of recoveries in public asylums was 32 per cent. of the admissions, as against 45 in private asylums. This rather alarming state of affairs for the superintendents of public asylums is partially explained by the fact that the two new asylums at Ayr and Larbert were opened in 1869, and immediately filled with, for the most part, chronic cases. Still, the average of the preceding ten years shows a percentage in public asylums of only 36. This is very small, considering the amount of appliances which are so freely praised by the psychologists of the present day. We shall expect another account of asylums when that "invaluable hypnotic," hydrate of chloral—with accounts of whose virtues the medical press now teems—shall have soothed at least 10 per cent. more into sanity.

The proportion of deaths on the average numbers resident is higher than usual, being 9·25 per cent. in 1869 in public asylums, as against 8·2 during the preceding ten years. This, however, may be exceptional or accidental.

The proportion of recoveries in males and females is as 32 is to 35·5, while that of deaths is as 9 is to 8. Female lunatics, therefore, seem to be in the best position, both as regards recovery and death. The Board of Lunacy appears to attach great importance, in considering the relative death-rates, to the fact that female paupers are more judiciously clothed than males. The females generally have a shawl or a cloak to put on when they go out, while the males have nothing extra. But this reasoning is scarcely borne out by one of the tables in this report (Table 1, page xvii.), in which it appears that the difference between male and female deaths is only 21. So small a disparity cannot be due to mere clothing; but at any rate, whatever be the reason of it, no reliable deductions can be made from the Lunacy Report, because it does not give the causes of death. General paralysis, so frequent a cause of death, is much more common in males than in females; so much more so, that psychologists of a fair degree of eminence have doubted its existence in women at all. We have little hesitation in saying, that the 21 deaths, which are such puzzlers to the Board, are to be accounted for by general paralysis alone. It is only fair to consider, too, whether if, as is pretty well confessed, insanity in the female is more curable than that in the male, it is not less deadly, also, in the chronic cases in the softer sex.

The Board makes some excellent observations on the want of proper means of studying insanity. It says very truly, "As a rule, medical men in general practice have a very imperfect knowledge of insanity." We are not certain, but we think that Edinburgh is almost the only place where any opportunities are afforded at all for its study. Two courses of lectures are delivered in connexion with its medical school—a Systematic one by Professor Laycock, and a Clinical one by Dr Skae of the Royal Edinburgh Asylum. Various suggestions have been made from time to time for an improvement in this condition of matters, but nothing will be done until its study is made compulsory. It is no use saying that it should be part of a course of practice of physic, for lecturers on practice of physic have scarcely time to lay down the most general rules for the treatment of disease.

The Board speaks in terms of censure of large asylums. We agree with them to a considerable extent; for it is plain, on the face of the matter, that much of the subordinate work must be entrusted to others than the superintendent. It is plainly impossible that he can visit personally every day 500, 600, or 700 patients. But there is no reason why he should not be personally acquainted with the case of every lunatic under his charge. The Board argues that one of the best asylums in Scotland, that for the Elgin district, has no resident medical officer, and leaves it to be inferred that, without a resident medical officer, every asylum would soon become the best. But the death-rate in the Elgin Asylum ranks with the highest in Scotland, and the visiting commissioners expressed their regret only a year ago that there should be so frequent a change in the medical officer (Eleventh Report, App. p. 171), from which it may be presumed that he is of some value.

Recent disclosures in certain English asylums have drawn the attention of the public to the amount of power which is placed in the hands of the attendants, or keepers, as they were formerly called. The Board makes some very pertinent remarks on this subject. If, as they allege, it really is "too frequently the case that no special care is taken to teach attendants their duties," the sooner such a state of affairs is remedied the better for all parties. Nothing can strengthen the hands of superintendents more than having good servants, and we wonder that, for their own sake, they do not take the trouble to teach them.

We wish we had space to enter into the question of single patients, which is treated more at length than we ever remember to have seen it before. But, for the details of the system, we must refer our readers to the Appendix of this Report, where they will find about twenty pages by Dr Mitchell, and ten by Dr Paterson, on this very important and interesting subject.

History of Modern Anæsthetics: A Second Letter to Dr Jacob Bigelow. By Sir JAMES YOUNG SIMPSON, Bart. Edinburgh: Edmonston and Douglas: 1870. Pp. 15.

The True Story of the Introduction of Chloroform into Anæsthetics. By DAVID WALDIE, F.C.S., etc.; *with Remarks* by GEORGE WALDIE. Linlithgow: George Waldie: 1870. Pp. 28.

Ether and Chloroform: Boston and Edinburgh (Dr Bigelow's Letter to Sir J. Y. Simpson). Boston Medical and Surgical Journal, March 1870.

DR BIGELOW, in his letter, takes offence at the Lord Provost of Edinburgh, when presenting the freedom of the city to Sir James Simpson on 27th October 1869, claiming for him the "greatest of all discoveries in modern times, the application of chloroform to the assuagement of human suffering," and, illogically confounding this with the discovery of anæsthesia generally, accuses Sir James of a desire to appropriate to himself all the credit of the latter discovery, to the detriment of America generally, and of Boston in particular. It is quite unnecessary to vindicate Sir James's title to the discovery of the application of chloroform to the assuagement of human suffering; that can never be disputed: but it is right that, in this Journal, in which his earliest papers on chloroform appeared, his latest disclaimer of anything more should be shown to be only a repetition of his earliest statement, in which full justice was done to American discoverers.

Anxious to secure for Boston the honour of having been the first place in the world where painless operations were performed, and to vindicate its title to its nameless memorial erected "to commemorate the discovery that the inhalation of ether causes insensibility to pain," Dr Bigelow utterly ignores all the past history of anæsthesia, and accuses Sir James of having blown a cloud of antiquarian dust into the eyes of his readers for the purpose of mystifying them, that chloroform might be more advantageously introduced to their notice. Certainly Sir James took time by the forelock, and commenced his mystifying early enough; for the very paper with which he prefaced the public introduction of chloroform, at the meeting of the Edinburgh Medico-Chirurgical Society on the 10th of November 1847, commenced with a most accurate and painstaking account of the discovery of sulphuric ether, the various modes in which it had been administered, and the various uses to which it had been put till these had culminated in its adoption as an anæsthetic agent by Dr Morton. Sir James then proceeded to show that the idea of painless surgery was not a new one, and this he did by taking a retrospective glance at the history of painless operations from the year 1298 downwards, after which he directed the attention of the Society to his discovery of the anæsthetic properties of chloroform (*Monthly Medical Journal*, December 1847, p. 451 and p. 415). So we see the antiquarian dust was certainly not swept up merely to be blown into Dr Bigelow's eyes, neither, we are certain, was it intended in any way, either then or now, to mystify his audience or reader. It was Simpson's way, when he hit upon any novelty in medical science. He made it his business to trace out the earliest indications of it extant in medical history, and to show how these faint indications altered and expanded with the widening stream of knowledge, till they culminated in the application or discovery to which he was about to direct attention. Not to mystify, but to simplify, was his object; to show how faint hints swelled through the rolling ages into substantial advantages to mankind; not, we believe, to magnify himself, but to encourage others to track similar hints through the winding paths of medical literature, and see if they too could not make them bear noble fruit when fertilized by modern science. How thoroughly his work was done in this instance will be at once seen by comparing the abstracts we have referred to—the paper was never published in full—with more recent and fuller attempts to trace the history of anæsthesia. With all this there was no attempt to connect himself more closely with the discovery of anæsthesia. To Dr Morton he freely conceded the credit of the adoption of sulphuric ether as an anæsthetic agent, just as he claimed for himself the adoption of chloroform for the like purpose; but to Dr Horace Wells he assigned, in his earliest paper on this subject, as he did in his latest, the sole credit of the restoration of the idea of painless surgery in modern times. To Hartford, then, and not to Boston, belongs the credit of the rediscovery of painless surgery, for in it the first painless operation in modern times was performed, when, on 11th December 1844, Dr Wells had a tooth extracted by Dr Riggs, when in a state of anæsthesia produced by the inhalation of nitrous oxide gas. Wells was the man, as Dr Bigelow puts it, "of sufficient courage and strength of conviction to put through the untried and formidable experiments necessary to decide whether life could continue under the inhalations of a scarcely respirable vapour, carried to such an extent as to destroy sensibility and produce apparent death;" and his conviction was so strong that he experimented on himself. Were Wells now alive, he would be universally hailed as the greatest benefactor of the human race, and no honours would be too great, no rewards too costly to heap upon him. Alas! that he should not, as his compatriot puts it, have learned "to labour and to wait."

Dr Bigelow is quite at liberty, if he chooses, to dispute the fact of the application of chloroform to the assuagement of pain being the greatest discovery of modern times; he will find some at least who will agree with him. Be it so: he cannot certainly dispute Sir James Simpson's relation to this discovery, nor will he, we trust, ever again say that Sir James desired to appropriate the credit of the modern discovery of anæsthesia; for that is as distinctly at variance with Sir James's earliest paper on the subject as it is with his latest.

Mr Waldie thinks that he has not got his due meed of credit in regard to the introduction of chloroform. What did this amount to? Merely to this, that in the course of conversation, when chloric ether was spoken of as likely to prove a substitute for sulphuric ether, Mr Waldie suggested its basis, chloroform, as likely to be better, and promised to send him some, which he never did. Simpson got chloroform from another source, and discovered and published its anæsthetic properties before Mr Waldie had time to send him any. Simpson always acknowledged that Mr Waldie had mentioned chloroform to him as a likely agent; what more would he have? M. Bouchardat, we believe, had as much, if not more, to do with the introduction of chloroform than Mr Waldie; at least, in a book, "Nouveau Formulaire Magistral," published in 1845, and which used to lie about Simpson's table then and afterwards, under the head of "Chloroforme," there is this remarkable statement:—"Cependant on peut se croire autorisé à regarder l'effet du chloroforme comme antispasmodique, et à penser que si une grande analogie de composition rapprochait cette substance des ethers, une grande analogie d'action était également commune à chacune de ces substances" (*op. cit.*, p. 102). Couple this plain statement, in a book frequently in Simpson's hands, with the recent discovery of the anæsthetic properties of sulphuric ether, and say whether it is not even probably more likely that the credit of the suggestion of chloroform as an anæsthetic agent is due, not to Mr Waldie, but to M. Bouchardat. Why does he not claim it? Probably, because he is wise enough to know that it is not he who discovers a drug, nor he who suggests an application, but he who makes the application, and makes it practical and public, that is the benefactor of mankind.

On the Writings of the Insane, with Illustrations. By G. MACKENZIE BACON, M.D., Medical Superintendent, Cambridgeshire County Asylum. London: Churchill and Sons: 1870.

IF we were to suggest to any of our grave brethren, who are at once the supporters and the readers of these pages, that an intimate acquaintanceship with one's self, with all one's motives, passions, and even ambitions, may be purchased for the trifling outlay of thirteenpence (and a stamped directed envelope), without the trouble of self-communing, inward examination, or any other tortures whatsoever, we suppose that, even if the editor should permit our innocent hint to see the light of day, we should be scouted as ignorant followers of evaporated superstitions. Yet there are original (and eminent) graphiologists who for that ridiculously insignificant sum will give you quite as good a character as you have any right to expect for the money. And if one should take the trouble himself, it is really not a very difficult thing to read a character by the handwriting. Passing over the flattering tale which we see ourselves in the manuscript before us, let us take the first piece of handwriting which lies near us, and attempt to form some idea of the bulk, or want of bulk, of the mind which has dictated the forming of the letters. Who does not see in the long loops to the *h's* and *y's* a certain indecision, mingled with kindness—a verdict corroborated by that herring-bellied long-faced capital D? Again, take that round, large, hurried-looking hand, legible enough, but with evident want of care and order: do you suppose that writer would know where to find a favourite pair of trousers in the dark? Certainly not, unless his wife writes a better hand than himself. Professions have their distinctive handwritings—the lawyer's, running, legible, and firm; the clergyman's, neither very running nor very legible, nor very firm, but often hurried and unbusinesslike; and the doctor's, for the most part, as illegible as Lord Brougham's. Truly, we have nothing to be proud of in the caligraphy of our profession. One gentleman with whom we are intimately acquainted writes as if he was animated by a personal spite against every one with whom he corresponds, and begins all his words with a long straight stroke, ending in a crooked line, something like a drawing of a coach-whip turned upside down. Another, a very distinguished surgeon, seems to secure the used-up quills of his friends, and, rejecting those whose nibs are less than a quarter of an inch apart, writes ferocious-looking letters with the veteran remainder.

If these things happen in the green tree, what shall be done in the dry? We have before us a little compilation of the different handwritings of the insane, and, so far as the mere handwritings go, they will compare very favourably with those of many gentlemen who are at large in the world. Dr Bacon has presented us with an interesting account of the more typical specimens of insane penmanship. For that reason, that they are typical specimens, it is not likely that his little book will take any rank in the scientific world, as it contains much more of the popular than the scientific element. However, it is an interesting addition to the literature of handwriting in general. Every one who has been connected with the insane has as good or better samples of writing in his own possession, and it is not likely that he will go to this book to procure more. While we are criticising, we may take occasion to regret that he has given no specimens of the handwriting in aphasia, so characteristic of the disease. He says also that he claims originality for his observation of the handwriting of general paralysis, adding that he considers it of diagnostic value. Neither of these statements are, strictly speaking, correct. He will find the former alluded to in Dr Sankey's work on General Paralysis, and in Drs Tuke and Bucknill's Text-book of Insanity. As for the latter, we have now before us the handwriting of a girl aged about twenty years, which it is impossible to distinguish from one of a general paralytic.

But it is one thing to write a good hand, and it is another to express yourself correctly. Of the two, judging from our own daily correspondence, we should think the former the more difficult, although the latter frequently comes in a very good second. And this is the more remarkable, because, while every effort is made at school to teach a boy a good hand, very little attention is paid to his learning how to compose even a tolerable sentence, of which the consequences are apparent enough in the letters to the daily papers. In the book before us much of the handwriting is certainly of the undeveloped type; but as, we suppose, Dr Bacon's patients are chiefly of the pauper class, there is very little in the mere handwriting to indicate insanity. But when we come to the expression of thought, our eyes are arrested by some strange appearances. What is this fearful-looking compound of circles, triangles, parallelograms, cones, and paraboloids, coloured in warlike fashion, and scribbled over as though for very life? or this strange page, streaked with ink as if a drunken spider had crawled over it with inky legs? What strange workings must have been passing in the brain-cells of these writers—what hinges unloosened, what loss of control! Verily, let us shut the book, for may it not happen, reader, that we too may one day pen the same hideous thoughts, dream the same unholy dreams, and pass the same restless days?

Diseases of the Heart among Soldiers. By ARTHUR B. R. MYERS, Assistant-Surgeon, Coldstream Guards. London: Churchill and Sons: 1870. Pp. 92.

THE General Committee appointed to carry out the project for which the Alexander Memorial Fund was originally contributed, viz., the placing of a bust of the deceased Director-General of the Army Medical Department in the Royal Victoria Hospital, Netley, having a surplus on hand, were directed by the subscribers, at a meeting held for the purpose, to invest that surplus, and out of its proceeds to provide a medal of the value of not less than £5, and a purse of fifty sovereigns, to be awarded once in three years to the Executive Medical Officer, on full pay, who shall write the best essay on a selected subject in Military Medicine, Surgery, or Hygiène. The subject selected for the first competition was, "The Etiology and Prevalence of Diseases of the Heart among Soldiers, as compared with the civil population of those countries in which they are called upon to serve, and the means of prevention or mitigation,—due regard being had to the conditions in which the soldier is unavoidably placed." Mr Myers has been the successful competitor for this prize, and the result is the essay now before us. The subject is one of the highest interest, and is capable of affording information of the greatest value in regard to the etiology and prevention of heart complaint. To be of much value, however, the inquiry must be carried out after the strictest scientific method, and based upon wide statistics drawn from both subjects of comparison—the army and the general public. It is possible that efficient statistics of the prevalence of heart complaint and of its causes in the civil population, are not obtainable and their absence would invalidate all comparative conclusions and lessen the value of the essay, restricting it to a mere statement of the actual prevalence and supposed etiology of disease of the heart in the army. Even this restricted view of its value must be still further limited by the facts that only the actual deaths are statistically available, the invaliding being liable to error, Drs Maclean and Morehead both stating that numbers are invalided for disease of the heart in whom no such disease existed (p. 56)—a statement which we can confirm from our own necessarily much more limited experience; while the absence of any available statistical experience of the etiology of cardiac disease in the civil population, must of course more or less invalidate the views entertained in regard to the etiology of this disease in the army, reducing it more or less to a mere expression of opinion, which may or may not be of value.

With these preliminary remarks, as to the mode in which the value of this essay as a contribution to science must be tested, we proceed to consider the essay itself. The subject is considered under four heads—*1st*, Prevalence of diseases of the heart in the army compared with other classes; *2d*, Particular forms of disease so prevalent; *3d*, Causes of the same; *4th*, Remedies proposed. Under the first head of comparative prevalence, our author deprecates criticism, by acknowledging the imperfection and insufficiency of his data for several reasons, two of which are amply sufficient: viz., *1st*, Because the soldier, on enlistment, is presumably selected as having a healthy heart, while the prevalence of disease of the heart among the male civil population of his own age is conclusively proved by the large number of rejections of recruits on account of it, this varying in three years from 19 to 25 per cent.; *2d*, Because the larger proportion of soldiers affected with heart disease are invalided, and return to their homes to die, their deaths being registered on the civil list, and unfailingly increasing the comparative mortality of this class. The mortality returns forming the only information available for a comparative analysis of this kind. Moreover, in the civil population, heart complaints increase with advancing years; but a considerable proportion of the army is under thirty years of age; all comparison, therefore, ought to be in favour of the army, were natural causes alone at work; nevertheless, the army ratio of deaths from heart disease is in excess of the civil one in the proportion of 9 to 7, taking both classes between the ages of twenty and forty-five. The statistics of the navy, the police, and the merchant seamen, show that the deaths from heart disease are much less numerous among them than among soldiers, the ratio per 1000 for the navy being ·6; for the police, ·29; and for the merchant seamen, ·35. While foreign statistics, so far as they go, seem also to prove a greatly less liability to heart complaint in foreign armies than in our own, one reason for which is probably the short period of service in some of them, prolonged military service being, according to English experience, necessary for the full development of these complaints. In regard to the prevalence of heart complaint among our own troops in foreign stations, it is found that this varies somewhat in different stations, varies also somewhat in different corps, and is least where the mortality from all causes is greatest, but is always in excess of the prevalence of the same disease among the civil population in the same places. It is also somewhat striking to find that, in the army, tubercular diseases are not more common than diseases of the circulatory system, the fatality of the two being about the same; while, in the civil population, the deaths from heart complaint are less than one-third of those from tubercular disease. However defective these statistics may be in many points, they convey a very strong impression that our army, comprising a body of men in the prime of life, and enjoying for their station in life exceptionally hygienic conditions, suffer most disproportionately from diseases of the circulatory system, a much larger proportion of these, comparatively young men, dying from heart disease than happens within similar age-limits in civil life. This, however, by no means proves, as it is assumed to do, that the circumstances of a military life are specially favourable to the production of disease of the heart, but only that its exigencies hurry it on to a fatal termination. The ratio of deaths from heart disease in the army is in excess of that of the civil population in the proportion of only 9 to 7; but in the army itself, the ratio of deaths from disease of the organs of circulation in troops in cantonments, and those on the march, as deduced from the experience of the Bombay army in 1866, varies in the proportion of ·66 to 3·38 per 1000 (p. 19)—a very striking fact, and one which, after making every allowance for climate, conveys a most unfavourable impression of the fatal influence of military exigencies upon heart disease—an impression still further confirmed by a glance at the statistics of the police, the merchant seamen, and the navy, in whom the deaths from cardiac disease rise in the order mentioned; that is, in proportion to the muscular exertion required or enforced; for, however much the exertions of merchant seamen may exceed those of a policeman, they certainly fall considerably short of his naval compatriot, who has not only to work the ship, but also to man the guns. A military life may therefore be held to be specially unfavourable to those affected with heart complaint: these statistics prove this, but they prove only this. We shall presently return to the question of causation.

Mr Myers considers that valvular disease of the heart, hypertrophy, and aneurism, are those diseases of the circulatory system which cause the greatest loss to the army; and assuming that these diseases are more prevalent as well as more fatal in our military than in our civil population, showing also that, according to our best information, acute rheumatism and renal disease are less prevalent in the army than among civilians (p. 24), he proceeds to investigate the most probable causes of this state of matters, and comes to the conclusion, that the most effective cause of heart disease in the army is neither syphilis nor intemperance, but constriction of the neck and chest of the soldier by his clothing and accoutrements, during the severe exertions imposed on him while drilling, marching, or fighting, and advocates, as the most efficient prophylactic, a system of drill, clothing, and accoutrements more simple, and more in accordance with the physiological necessities of the man, and not with the mere smartness of the soldier. Mr Myers also advocates that the first year of the soldier's life at least should be chiefly spent in the workshop, so that more time may be allowed for the perfecting of his physiological condition, before he is put to the severer strain of military life. Supported by quotations made impartially from Maclean, Parkes, Hope, Boerhaave, Morgagni, and Virchow, this part of his essay is not nearly so convincing as it looks. Neither rheumatism nor renal disease are such constant precursors of heart disease in civil life as they are supposed to be. We do not mean to deny the very frequent causative connexion between them, but merely to state that there are a very great many cases of heart disease in civil life in which no such connexion can be traced, and that in the absence of special statistics bearing on the origination of heart disease in civil life between the ages of 20 and 45, we cannot accept it as proved, that during these ages rheumatism and renal diseases are more frequent causes of heart disease among civilians than among soldiers. On the other hand, hypertrophic dilatation of the left ventricle, disease of the aortic valves (presumably regurgitant), and aortic aneurism, which, according to Myers, form the chief source of mortality from diseases of the circulatory organs in the army, are diseases of degeneration, not necessarily due merely to constriction of the neck and chest, probably in their origin not depending, except exceptionally, upon that at all. It is difficult to conceive how a tight collar or a crossbelt could give rise to dilated hypertrophy of the heart, except by acting on an organ already enfeebled and degenerated. Who are those, in civil life, most prone to such diseases? It needs but little experience to say that it is those who, leading an irregular life, are from circumstances exposed to occasional violent exertion. The habits and exigencies of British military life are the true causes of the prevalence of deaths from heart complaint amongst the soldiery. Tight clothing and crossbelts act unquestionably as most injurious concomitants; but it would require stronger proof than any yet offered to convince us of their efficiency as causes. By all means remove these, but search also deeper, and try to eliminate the real *fons et origo mali.* Enlistment for short periods, the establishment of workshops, and a careful supervision of the soldier's morals, seem to us very important hygienic measures in this direction. The essay is pleasantly written, and easily read, being furnished with copious marginal references. As an essay on so important a subject, it does not, however, seem to us to be quite so careful as might be desired in distinguishing between facts and opinions.

Die Blutgefässe der menschlichen Nachgeburt in normalen und abnormen Verhältnissen. Mit 20 Tafeln. Von Dr JOSEPH HYRTL, Professor der Anatomie an der Wiener Universität. Wien: 1870. Wilhelm Braumüller, K. K. Hof- und Universitätsbuchandler.

The Bloodvessels of the Human Placenta in normal and abnormal relations. With 20 Plates. By Dr JOSEPH HYRTL, Professor of Anatomy in the University of Vienna. Vienna: 1870. Wilhelm Braumüller, Bookseller to the Imperial Court and University.

EVERY one connected with a book like this has a just source of pride. Braumüller's books are well known for the complete handsome form in which they are produced, and this beautiful volume will add to the celebrity of his establishment. If an author in this country offered such a work as this to a publisher, his proposals would meet with no response; he would be told to bring the work out at his own expense. This is not from any want of enterprise, we believe, on the part of publishers, but from the want of knowledge and of zeal on the part of the medical profession. It is notorious that our medical men do not buy books. They do not read them. Such a book as this will not sell a dozen of copies among them. They are always hunting for practical papers in journals, and practical works from the press; and are, to a great extent, content to live in ignorance of science, the best basis of practical knowledge and success. They do not want science and success. They want easy roads to results, the chief result desired being a pocketful of money; and this they get by ringing the changes on the short-lived practical novelties of the day, the children either of mediocrity or of charlatanry. It certainly is not so in Germany to the same extent as here; and naturally connected with this, we have Germany leading us in everything—Germany conquering the world!

This work forms the best illustration we have recently seen ot the still persistent lacunæ even in ordinary anatomy, healthy and morbid. The researches of Hyrtl are by no means transcendental. No fine modern means of investigation are resorted to, and yet we have a fine show of valuable fruits of his labour.

The plates are admirably executed and coloured. They are from actual preparations. Hyrtl had no placentæ to work upon from his own practice, but made his observations on afterbirths sent to him by Braun and Spaeth of the Great Vienna Lying-in Hospital.

Among the chief points made the subject of original investigation, we may enumerate the following:—The twisting of the cord—the twisting of the vessels of the cord—loops of the vessels—the anastomoses of the vessels—the valves of the veins and of the arteries—the knots of the cord, false and true—the dilatations of the vessels, bulbi, varices—the anastomoses in placentæ of twins and triplets—the relation of these anastomoses to the sexes of twins and triplets—the diseases of the vessels.

Chloroform versus *Pain, and Paracentesis of the Bladder above the Pubes.* By the late J. H. James, F.R.C.S., etc. (of Exeter). London: John Churchill and Sons: 1870. Pp. 62.

The long life, valuable labours, and vast experience of the late Mr James, give to everything from his pen a certain value. We do not, however, think that the first paper in this little pamphlet is worthy of his reputation. It is loosely and carelessly worded, and really does not say very much about the subject of which it is supposed to treat. As usual in Mr James's works, it contains one or two good practical hints: *one*, for rapidly blistering in urgent cases, might well be inserted into manuals of minor surgery. "A boiling-water blister may afford a most powerful, ready, and useful stimulus to the nervous system. A basin, say half a pint, should be filled with flannel, hastily pressed in, and boiling-water poured upon it to saturation; a plate or large saucer should be applied to its top, and, being inverted, the superfluous water can be forced out of it, the saucer removed, and the basin pressed upon the chest or elsewhere; a soft towel round the edge guarding the neighbouring parts—of course, it must not remain on long."

The second paper, on Paracentesis of the Bladder, is more practical. After an introduction, in which he points out the great differences of opinion, and laxity of description of this opinion, in the classic English text-books, Mr James illustrates the operation by detailing some cases from his own practice—certainly not very encouraging in their results. The first three were fatal, one of them being a *dry* tapping even after a second puncture.

We agree with Mr James, that cases requiring this method of relief will always be rare in experienced hands. The paper contains some useful hints, and shows all the author's strict honesty in relating failures as well as successes, mistakes as well as happy hits.

Snuff-Taking: its Utility in preventiny Bronchitis, Consumption, etc. By JOHN C. MURRAY, M.D., F.A.S.L. London: John Churchill and Sons: 1870.

THIS clever little *jeu d'esprit*—for it is nothing more—is an extension of a paper read by the author before the British Medical Association at Newcastle-upon-Tyne, last August. It has this very objectionable addition, that one-eighth of its entire bulk is taken up with very quackish-looking commendations of its principles by correspondents. Sulphur has gone down, and snuff has turned up: discarded by the public, it is now pressed upon them as a medical luxury. It is a preventitive of colds, consumptions, etc., and never does any harm. We happen to be well acquainted with several snuff-millers, one of them long in charge of the largest snuff-mill in Britain; so, conceiving that he would be likely to know at least as much about snuff as Dr Murray, we recently took the liberty of asking him if he ever had a cold while taking charge of his mill. The reply was unmistakably affirmative. Incapable of preventing so simple a thing as a common cold, of course it could have little effect on consumption. We proceeded in our queries: "Did the snuff ever hurt you?" "Never a bit, my chest is as sound as a bell; but oh! my stamack; what a wearifu' time I had wi' my stamack a' the time I was in the mill. Mony a time I thocht I wad gae mad wi' my stamack. I'm better noo, though, that I'm oot o' the snuff. Willie Fleming and Jock Davidson (two other snuff-millers) are baith the same—auldlike and wizened; and it's a' their stamack." A wink is as good as a nod; let those that desire a good digestion, 'ware snuff.

A Pathological Classification of Mental Disease. By J. B. TUKE, M.D., Medical Superintendent, Fife and Kinross Asylum.

WE often have cause to bewail the truth of the adage, that doctors differ, but on no occasion more loudly than when some proud son of man returns to earth, and, having been considered weak in the upper storey all his life, leaves a large fortune in a way not altogether appreciated by his mourning relatives. Then, instead of the sculptor's art exhausting the pomp of woe, the solicitor's art is called to the aid of the afflicted and bereaved kinsfolk, and half a score of witnesses swear that the deceased gentleman was as mad as a March hare, while another half-score will swear that he was not mad at all, only eccentric. In the midst of this riot, science is called in to help, and then of course all is quiet. Faint hope! Two physicians of eminence in the profession, and elevated above the faintest rumour of suspicion, swear that in their opinion the defunct party was a pitiable object of insanity, and quite incapable of properly transacting his own affairs; while two others of equal eminence contend that he never was insane.

Why should these things be? If the same four gentlemen were examined as to the existence of valvular disease, and asked if it was advisable that one suffering from it should go into the trapèze line, there would not be so great a difference of opinion. One answer to such an instance is that, fortunately for the sufferer from disease of the heart, neither he nor his friends know anything about it, and they are consequently compelled to take the physician's word for it; but another answer is, that in these cases the physician knows what he is talking about, and can point to some pathological condition which exists as a stubborn fact in the way of all controversy. When we come, however, to a question of insanity, we find so much doubt to prevail in the mere nomenclature of disease, that even among men of much experience, it is almost a toss-up, whether two opinions out of half-a-dozen will coincide. And really, when we look at the slipshod way in which the various disorders of the intellect have been classified, there is little room for surprise.

To remedy this crying evil, Dr Skae turned his mind to classifying the different forms of insanity on a sound principle, and accordingly read a paper on the subject, in 1863, at the Royal College of Physicians of London. If his system is not perfect—that is, not fully elaborated—it has, at all events, the merit of being constructed on an intelligible basis, and, with a few slight blemishes, not in any way affecting its principle, but being mere matters of detail, it may be said to be the most valuable contribution to the science of insanity produced in our time. Dr Skae's starting-point is this:—"We ought to group all the varieties of insanity in accordance with the natural history of each." His pre-eminently practical mind is impatient of the vagueness of the old manner of classification. Why, he says, when a man at the climacteric period suffers from despondency, remorse, hopelessness, and so on, should you say that such a person labours under melancholia or monomania of fear, or unseen agency, or what not? He very justly argues that no clue as to the cause, if any exist, is given with such a system. But, on the other hand, if you are told that a man is suffering from climacteric insanity, or insanity of syphilis, you are at once presented with a guide to your treatment, and, most important in many cases, your prognosis. This, then, is Dr Skae's theory, that insanity is the result of a morbid physical state, like any other disease, and that the varieties of insanity should be classified according to the physical causes or pathological changes which produce them. In accordance with this principle, he has published a table of natural orders, which we append.

"Idiocy,
Imbecility, } Moral and Intellectual.
Insanity, with Epilepsy.
Insanity of Masturbation.
Insanity of Pubescence.
Satyriasis.
Nymphomania.
Hysterical Mania.
Amenorrhœal Mania.
Post-Connubial Mania.
Puerperal Mania.
Mania of Pregnancy.
Mania of Lactation.
Climacteric Mania.
Ovario-Mania (Utero-Mania).
Senile Mania.
Phthisical Mania.
Metastatic Mania.
Traumatic Mania.
Syphilitic Mania.
Delirium Tremens.
Dipsomania.
Mania of Alcoholism.
Post-Febrile Mania.
Mania of Oxaluria and Phosphaluria.
General Paralysis, with Insanity.
Epidemic Mania.
Idiopathic Mania, { Sthenic.
Asthenic."

With the principle involved in this table no rational creature can disagree, however much he may be disposed to argue that it is in detail both redundant and defective. But Dr Skae does not by any means claim for his paper the merit of perfection—he expressly says that it is but a "skeleton theme." He offers it "as the germs of thought, which may, through our means and by our combined efforts, culminate in a better, a more definite, and at least a more practical method (of classification) than the one in present use." It may very reasonably be objected, for instance, that the terms, "Satyriasis" and "Nymphomania" are a return to the old vague systems; for they do not indicate any disease of the body, and may exist, and generally do, as symptoms of other forms of insanity.

Since the publication of Dr Skae's paper, various articles have been written on the same subject, one of which is now before us. Dr Maudsley, too, in his peculiarly comprehensive and eloquent manner, has, following Dr Skae's method, proved beyond all doubt the relations betwixt body and mind in his recent Gulstonian lectures. In Dr Tuke's paper (which was read at a meeting of the Psychological Society), Dr Skae gets all the credit of having given the first impetus to this particular investigation; but the details of his system are, we think, unnecessarily and somewhat mercilessly pulled to pieces. Dr Tuke calls his own article "A Pathological Classification of Mental Disease," and objects to Dr Skae's because that writer studiously avoids the word Pathology. Now, in the first place, it may very well be said for Dr Skae, that it is impossible, in our present, and possibly in any future knowledge of pathology, to assign it as the fundamental cause in all insanity. It would be difficult, for instance, to point to the pathological change in climacteric insanity. Then, again, it should be remembered that Dr Skae wrote his paper, as he expressly says, merely to give the subject a start, and that his theory had never been subjected to criticism of any kind. He does not consider it perfect, and it is indeed almost impossible that one man could initiate such a subject without exposing some weak points. But, after all, Dr Tuke's criticism is too hasty; for although Dr Skae does not call his system a "pathological" one, pathology plays a very important part in it, wherever it is admissible; and where it does not, we cannot help thinking that he has very justly excluded it.

Dr Tuke says, a little further on, that Dr Skae has virtually returned to the system he so elaborately deplores, by allowing so large a margin for "idiopathic" insanity. How does Dr Tuke get over this difficulty himself? He divides the varieties of insanity into seven great classes of—I. Insanity resulting from arrested or impaired development of the brain. II. Idiophrenic insanity. III. Sympathetic insanity. IV. Anæmic insanity. V. Diathetic insanity. VI. Toxic insanity; and, VII. Metastatic insanity. As sub-classes, he enumerates the various accepted and to be accepted forms of insanity, as idiocy, insanity of lactation, syphilitic insanity, etc.

It most forcibly occurs to us that Dr Tuke's objection to Dr Skae's "idiopathic" insanity applies equally to his own "idiophrenic." Allowing for a moment the accuracy of the term, is it not as valuable a gehenna to the puzzled psychologist as the other? But we must not pass over the expression itself without a word of expostulation. We fear that Dr Tuke has made use of a term here which can scarcely be acknowledged by the pathologist. Under the head of idiophrenic insanity are included the names of the commonest forms of insanity. It is necessary therefore that the word used to classify them should express one of the commonest pathological states. But is Dr Tuke prepared to say that the "idiophrenic" is a common or anything but a most rare condition? Is there such a condition as an idiogastric or an idiocardiac? But, farther, the affix "phrenic" does not mean anything connected with the mind at all, coming as it does from the Greek φρενες, the *diaphragm*. Had Dr Tuke used the word *idiophrenetic*, we should have understood what he meant, without, however, acknowledging the accuracy of his classification. On the whole, we prefer Dr Skae's term idiopathic, because it is an honest confession that there are many varieties of insanity, which, in the present state of our knowledge of physiology and pathology, he cannot refer to either a physical cause or a pathological change; and if all psychologists are equally honest, there is no reason why it should be a gehenna, as Dr Tuke seems to apprehend.

To sum up: we do not approve of Dr Tuke's classification as a pathological one, because it takes too much for granted. Classing all insanity under pathological groups, it assumes that our knowledge of pathology is sufficient to permit us to refer any case which comes under our notice to a pathological class. We do not think that Dr Tuke would entertain this assumption for a moment, if it were put to him; for if our knowledge of the healthy subject is confessedly far from perfect, our account with pathology must be still more in arrears.

We have discussed this matter at greater length than we had originally intended, but it is one which has not received the attention it deserves. If there be a field in medicine which has been more theoretically and artificially cultivated than another, it is poor insanity. It is true that it offers much temptation to the theorist, for what theme can be chosen admitting of more speculation and even eloquence than that which deals with the human mind? But it is time that science should step in and claim the god-like quality for her own. Such papers as the one which has formed the subject of this review will help to this end, by ventilating the question. But it must not be forgotten that the successful pioneer, and the first to rescue insanity from the hands of the theorist, and to place its study on a rational and practical basis, was Dr Skae. We have no doubt that, whatever advances we may make in physiology and pathology, his system of classification will be the one which will be finally acknowledged to be built on a sound principle.

Irregularities and Diseases of the Teeth. By HENRY SEWILL, M.R.C.S., Dentist to the West London Hospital. 8vo. Churchill and Sons: London: 1870.

MR SEWILL has here contributed much information on a number of interesting matters connected with dental surgery. He views the subject as it ought ever to be viewed, viz., from the stand-point of the fully-qualified surgeon. The department of which he treats demands that its practitioners should be as fully qualified medical men as any other special branch requires of those who adopt it as a line of practice. But until the public have some better means than exist at present of distinguishing between those who merely dub themselves "surgeon" dentists and those who really are so, it is a matter of some difficulty to know whether they are being treated by a surgeon or a mere empiric. From a consideration of such facts Mr Sewill says,—

> "We discover that ample justification exists for the efforts which have been made during late years to rescue dentistry from the hands of the ignorant charlatan, and to place it in those of the educated practitioner. It might, however, be alleged that dentistry, strictly confined to the treatment of the diseases of the teeth, constitutes a mere mechanical art. A similar belief was current not many years ago, with regard to surgery, when this branch of practice was pursued to a great extent as a handicraft. It can be shown that dentistry is no more a mechanical art than surgery. The practice of each, it is true, consists to a great extent of the application of mechanical apparatus, and of the use of cutting, sawing, and gouging instruments. But besides manual dexterity in the use of his tools, the surgeon is required to possess an adequate knowledge of anatomy, physiology, and pathology,—the sciences upon which his art is based, for it is found that without such knowledge his treatment must prove commonly unsuccessful, and in many cases disastrous. From the dental surgeon there are demanded similar acquirements, for without them, even in what at first sight appear to be simple mechanical details of practice, he also must be liable to many errors, and his treatment must constantly fall short of success, if indeed it do not aggravate the very mischief for which a remedy is sought."

Transactions of the Odonto-Chirurgical Society.—April 1870.

THE pamphlet before us, consisting of twenty-eight pages, and including the laws of the Society, might perhaps have been more judiciously published a little later, and when the transactions of the Society had assumed, if not greater importance, at least more magnitude. The existence of the Society is new to us, although the laws remind us of those framed some years ago for a similar association proposed but not carried out, owing to the professional status required for its membership being thought too high by the majority of dentists in Edinburgh.

The Liverpool Medical and Surgical Reports for 1869. Edited by P. M. BRAIDWOOD, M.D.; and REGINALD HARRISON, F.R.C.S. Vol. III.

THIS volume contains some excellent papers, mostly of a practical nature. Among them we notice a most characteristic paper on Chorea by Dr Inman; an excellent case of successful Lumbar Colotomy by Mr Hakes; a well-reasoned and instructive account of some Peculiar Results of Injury to Digital Nerves by Mr Banks; a clinical lecture on Submaxillary Cellulitis and its Treatment by Mr Bickersteth. The paper which will probably excite most notice at present is the one by Mr Hamilton on the use of "Carbolic Acid in Surgery." He seems to be impressed with the excellence of his own results, does not swallow the germ theory whole, and does not make any tremendous statements regarding the abolition of suppuration. He says—"The frequency of dressings depended actually upon the amount of pus which bathed the wound, the greater the amount the more frequent the dressing;" and also, "the superiority of carbolic acid dressings consists in their greater cleanliness, absence of smell, diminution of discharge, and *not* in the rapidity of healing." —P. 60. Dr Ewing Whittle contributes a careful notice of five cases of Rupture of the Uterus which had occurred in his own practice.

The last thirty pages contain abstracts of the Proceedings of the Liverpool Medical Institution, session 1868-9, and of the Liverpool Northern Medical Society, 1868. The chief remark we should make on these is, that surely one strong society would be better for science than two less powerful ones, even in a city so large and important as Liverpool.

A Treatise on the Diseases of the Eye. By J. SOELBERG WELLS, Professor of Opththalmology in King's College, London; Opthalmic Surgeon to King's College Hospital, etc. Pp. 796. 118 Woodcuts, and 16 Chromolithographs. Second Edition. London: John Churchhill and Sons: 1870.

THE second edition of this excellent work has followed so soon after the first, that a fresh notice of it in our columns is not required. We must only congratulate the author on its success. It bids fair, from its completeness, its catholicity, and its simplicity, to take the place, as a work of reference, so long and worthily occupied by Mackenzie's Treatise. All the newest discoveries in optical science, in the microscopic anatomy of the eye, and in operative treatment, are laid under contribution. It is thoroughly up to date, well illustrated, readable, and handy.

Part Third.

MEETINGS OF SOCIETIES.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXIX.—MEETING XIV.

Wednesday, 8*th June* 1870.—Dr BELL, *President*, in the Chair.

Alexander Ballantyne, M.D., was admitted as an Ordinary Fellow of the Society.

I. *Dr Keiller* exhibited a very interesting CASE OF CEPHALOTRIPSY to the Society. A young girl in the Maternity Hospital had been in labour for several days. She had a very contracted pelvis. As the head was still above the brim, it was necessary to do something. Finding it impossible to deliver her either by the long forceps or by turning, he considered it a good case for cephalotripsy, which was successfully had recourse to by means of the cephalotribe he had used in previous cases. On a former occasion, he had stated that in the recent cases in which he had employed the cephalotribe, he had found the Edinburgh instrument amply sufficient. He thought the members of the Society would see, by looking at the instrument and child in this case, that he had succeeded perfectly in diminishing the size of the head opposite the contracted part of the brim. Dr Inglis had said that he had failed in crushing the malar bones; but this was not absolutely necessary, because they were not usually opposite the contracted part, and in the present case, where the brim was contracted, there was plenty of room at the sides of the pelvis. The great point to aim at was to diminish the size of the head, so as to bring it through the narrow brim. He, Dr K., exhibited the child, with still applied instrument, as it had been extracted. The flexion of the head, and application of the blades beyond the base down to the neck, and the crushing power, were perfect. The side view was the best. In these cases, perforation was first adopted. After the head was extracted, the pelvis was so small that the body of the child required to be delivered by instruments. A hook was accordingly applied in the axilla of the child, where it had been pierced. So small was the pelvis, that the placenta had to be removed from above the brim. He considered that this was a good example of the powers of the so-called Edinburgh instrument. The mother had an inflammatory attack of the cervix, which was slightly lacerated. The pulse was very quick, but she was going on favourably. She was delivered on Monday night.

Dr Bell said that, along with the cephalotribe, the child weighed 12 lbs.

Dr Cairns thought that if the blades were made a little broader, and the corners a little longer, you would have a greater leverage power.

Dr Keiller said that no doubt this instrument could be easily modified and improved, but, as regards essentials, it was the kind of instrument necessary for the purpose. Sir James Simpson tried to improve the blades by making the one a little shorter than the other.

II. ON THE INFLUENCE OF CHLORAL UPON THE PAIN OF PARTURITION. BY MR E. LAMBERT.

This paper appeared in the August number of the Journal, p. 113.

The discussion on Dr Cairns's paper (*vide* p. 371) was now proceeded with in connexion with the preceding.

Dr Burn said that he had had but little experience of chloral, and that had not proved very satisfactory. In one case of delirium tremens, the second or third dose made the patient sleep for three hours, but the remainder of them did not do him any good. In a second case, a gentleman asked him if he might take it. The first dose rendered him perfectly excited. In two days afterwards, he was called to see the same person. He had taken a dose the night before, and had slept from 10 P.M. to 10 A.M. It was thought he had taken a fit. On my arrival he had much recovered; he had congestion and blueness of the lips and face. He forbade any more chloral being given. In another case in which it was given, it had no effect whatever. His experience, however, was so limited, that he could not give a very definite opinion. In reference to the cases recorded in the paper just read, he considered that they threw very little light on the subject. All the labours mentioned had been very protracted.

Dr Thomson had given it in a case of hysterical neuralgia. In one case he saw, it produced effects so very similar to those of alcoholic intoxication, that it was only from the strong assurance of the medical man in attendance that she had got nothing but chloral, that he was enabled to form the idea that they did not arise from stimulants. In another case, no rest could be got at night without the chloral. In the case of this patient, he recommended her removal from her family. In another case of neuralgia of the left breast, many things were tried; she had large doses of opiates and bromide of potassium without avail; 20 grains of chloral, or 6 grains at bed-time, had given her a most excellent sleep. Afterwards, when the pain again resumed its former severe character, he thought that some internal organic disease might be present; and accordingly, after death, he found a tumour in the thorax and observed caries of the ribs posteriorly, about the centre of the back. The neuralgia was caused by the disease of the bone. There was also inability to pass urine; very much to his annoyance, as it had to be removed. He felt disinclined to use it in ordinary cases of parturition—he preferred chloroform; besides, it was a depressing agent, from which the patient did not readily recover.

Dr James Young said that he had used chloral largely, and found it most serviceable as a hypnotic, inducing sleep and relieving pain, in doses of half a drachm. In delirium tremens it was especially beneficial. In the case of a gentleman in Princes Street, whom he had seen lately, it was of the greatest use. The patient was violent and unreasonable, and had slept none for several nights. He was induced to go to bed, and had one drachm of the hydrate of chloral administered. He slept several hours, and awoke comparatively well. Next night he had another drachm, and on the following day went to his business. In cases of severe nervous headache, he had seen quiet sleep, with relief, produced by drachm doses. He had a lady patient residing in France, who wrote him that she could get no sleep in consequence of intense headache. He sent her a prescription for chloral, and by a letter he had received, she stated that the relief derived was inconceivable. Dr Young said he had used chloral in cases of infantile convulsions in doses of one and two grains, with marked benefit in checking the convulsions and inducing sleep. In cancer, he had used it frequently with good results.

Dr Cairns made some remarks in reply to observations on his paper.

Part Fourth.

PERISCOPE.

SURGERY.

Mortality in Lateral Lithotomy.—Mr G. Y. Heath, in his admirable address on Surgery, at the meeting of the British Medical Association, held lately in Newcastle, related that in 69 cases of lateral lithotomy, performed in the Newcastle-upon-Tyne Infirmary, between the years 1859 and 1869, there were only two deaths. Out of these 69 cases, we learn that Mr Heath himself performed the operation in 28 cases, without a single death.

Ovariotomy in a Girl aged Twelve.—M. Jouon, professor at the medical school of Nantes, successfully performed this operation a short time ago. The patient had been suffering from an abdominal tumour for the last eighteen months, and the growth had reached the size of a twin pregnancy at the end of gestation. The diagnosis was not easy, and at one time hydatid of the liver was suspected. On the strength of the last supposition it was determined to open the abdomen by caustics. When the slough had been incised, it was found, after the evacuation of some liquid, that the abdomen contained a capacious pouch, studded with fibrous tumours projecting in its cavity. As now the diagnosis was clear, and the girl lost ground every day, ovariotomy was performed. The cyst was multilocular, and the adhesions numerous; but, in spite of these difficulties, and the patient's tender age, she was well on the forty-sixth day after the operation.

REPRODUCTION OF BONE.—At a meeting of the Medical Society of the County of New York, Dr William R. Whitehead read a paper on this subject. Assuming that the conditions which regulate bone growth, could we fully discover them, would be found as constant in their action as those which govern the phenomena of inorganic nature, the speaker proceeded to give his views of the true method of investigation to be pursued, and to review the history of opinion upon the subject of osteogenesis, touching also upon the general history of experimental research in medicine and its cognate sciences. It was important to seek for the minor laws that modify the working of the more general ones, producing perturbations which, whether seen in the growth of a cell, in the formation of a crystal, or in the motions of a planet, will prove, when these laws are discovered, to be not fortuitous, but regular. And to aid in these researches, it was important to bring the results of a broad generalization to bear upon each limited department of study.

To Duhamel, in the last century, when France was the theatre of the highest intellectual activity, was due the discovery of the property of the periosteum to reproduce bone. The theory suggested by his studies in vegetable physiology he established by experiment. It was opposed by his contemporaries, and rejected by Bichat and Scarpa, who, for a time, held almost undisputed sway over medical opinion. Later, Dupuytren admitted the action of the periosteum in forming the "provisional callus;" but it was only about a century after Duhamel's discovery that it was forced into general recognition by the efforts of many investigators, prominent among whom was Flourens. At present, Sédillot is the leading opponent of the doctrine that the detached periosteum has the power to reproduce bone, maintaining that the only way of insuring regeneration, in cases of necrosis, is to scoop out (*évider*) the bone in such a manner as to leave its outer layer still adhering to the periosteum. He has been ably refuted, and the efficacy of subperiosteal resection fully established, by Holmes and many others. Among the surgeons in this city whose experience upon this point would seem to be conclusive, may be mentioned Dr James R. Wood.

But the repair of bone is not left dependent upon the periosteum alone. The medullary tissue has a similar power, which, as Goujon has conclusively shown, it may exhibit after transplantation into vascular parts, especially in early life, when it contains an abundance of calcareous salts. But it is far less likely to produce bone than is the periosteum, under similar conditions, and the bone produced is soon absorbed, while that originating from periosteum is apt to be permanent. As to the so-called medullary membrane, or endosteum, its functions, whether of reproduction or absorption, cannot be regarded as settled; and indeed its very existence is in dispute.

Although the medullary tissue stands next to the periosteum in osteogenetic power, yet it shares this with nearly all cellular and fibrous tissues, and even muscular tissue may become ossified under favouring conditions. These conditions would seem to be chiefly long-continued or repeated irritation, in connexion with "a perverted assimilation of the calcareous salts of the blood." The presence of some of the proper osseous tissues in a state of irritation is also regarded by Ollier as conducive to ossification of the neighbouring parts.

The effort to obtain reproduction of bone by transplantation of periosteal flaps (as distinguished from subperiosteal resection), so successful in many of the experiments upon animals, has not commonly met with the same success in man. Still, its satisfactory results, under good conditions, are sufficiently numerous to warrant its recognition as an important surgical procedure, likely in the future to receive a wider application. At present, perhaps the best illustrations of its value are to be seen in Langenbeck's operation for closure of cleft of the hard palate, known as muco-periosteal aranoplasty. The speaker had—in two cases of this operation which he had published—convinced himself that the cleft in the palate might thus be closed by a growth of new bone.

In conclusion, Dr Whitehead related three experiments of subperiosteal resection which he had made upon rabbits, and exhibited the specimens, showing their results.

Dr J. C. Nott said, that some thirty years ago, Dr Toner, now of California, then a young man commencing practice, had published several cases of onychia, in which he had removed the phalanx, leaving the periosteum, and obtained a reproduction of the bone. Impressed by these cases, the speaker had himself followed this practice ever since, and with success. He had heard that old Dr Dudley was accustomed to treat onychia in the same manner. In a case of necrosis of the upper jaw, he had, in removing the bone, left its periosteum in situ, and the bone was regenerated.

Dr Sayre had from his earliest practice removed phalanges in the manner above described, which he had been taught by Dr Dudley. It was very important, in such cases, to dress the finger, during the process of healing, so as to preserve its normal shape, otherwise the nail would become hooked over, or some other deformity result. One of the speaker's sons had smashed his finger throughout its whole length, so that at first amputation seemed unavoidable. But by careful preservation of all the periosteum, almost complete reproduction of all the phalanges was secured, and the finger was now serviceable, though somewhat shorter than its fellows. The doctor had resected subperiosteally four and one-half inches of the femur of a young man. The bone was completely reproduced, the limb equal in length to the other; and the lad had last winter won a prize in a skating match.

Dr Chadsey related a case of necrosis of the entire tibia, which was removed as a sequestrum, new bone having formed around it firm and serviceable, though at first large and misshapen. It gradually became reduced to about the natural size. A patient of his had been kicked by a horse above the eyebrow, severely comminuting the outer table. In removing the pieces of bone, the periosteum was left attached to the skin; and the lost bone was restored with no depression or deformity.

Dr Bibbins referred to two cases of necrosis of the lower jaw, from gangrenous stomatitis in children, which had come under his care at the Nursery Hospital, Randall's Island, in 1850. In one of them, he had resected the bone from the canine tooth to the angle of the same side; in the other, from the canine tooth to the angle of the opposite side. The periosteum was carefully left in both cases, and in both the part removed was reproduced, though, of course, without teeth or alveolar process.—*Philadelphia Med. and Surg. Reporter.*

MEDICINE.

HYDRATE OF CHLORAL IN DELIRIUM TREMENS.—On the 27th of June 1869 a drosky ran over a drunken woman of 40, breaking her left humerus. This was found to be comminuted, with great mobility of the fragments, but little injury of the soft parts. The arm was kept cool all night, and was put up in plaster of Paris next day, the bandage being carried up to the shoulder-joint. During the bandaging the patient seemed excited; she had the peculiar hasty look so common in drunkards about to become delirious; her hand trembled, and she spoke continuously about her misfortunes, but rather cheerfully than dolefully. Prophylactic doses of brandy and opium were given, but, nevertheless, the delirium broke out with great violence during the next night. The patient tumbled about in her bed, and had to be put in a strait-jacket; and though her shoulder was well fixed, yet her violent exertions were sufficient to cause her deltoid continually to elevate the upper fragment of her humerus with great force against the soft parts. During the night and up to the next forenoon (28th June) seven grains of opium and three quarters of a grain of morphia had been given, yet not the slightest rest had been obtained. The patient was in the greatest danger; her arm was black with blood effused from a vein torn across by the constant action of the broken humerus. She was as wild as ever; disarticulation seemed impossible, and gangrene inevitable, if the continuous movements could not be stopped. In despair Langenbeck, under whose care she was, applied to Liebreich for some chloral, and at half-past one, one drachm (4 grm.) was administered by the mouth, and shortly after thirty grains (2 grm.) were injected subcutaneously at three several times. In ten minutes she became quiet though the delirium continued; and in a quarter of an hour she fell asleep, slept quietly till next morning, and awoke free from every trace of delirium. On careful examination of the arm, it seemed still possible to save it. The patient remained quiet till the evening of the 29th, when she again became excited and delirious. Thirty grains of chloral by the mouth sufficed to put her to sleep; she slept all night, and the delirium never returned. Gangrene of the soft parts occurred where the upper fragment had been so constantly driven against them; the comminuted fragments of the humerus were laid bare, but the wound was healing satisfactorily when the case was published. Langenbeck believes that this woman owes her life to chloral; she was certainly the first patient cured by it of delirium tremens. He also relates a case—unfinished—in which he had found the chloral useful in tetanus and trismus.—*Berliner Klinische Wochenschrift*, August 1869, No. 35.

CURE OF PLEURITIC EFFUSION BY DEPRIVATION OF FLUIDS.—Dr Glauert relates a case of pleuritic effusion treated by Professor V. Niemeyer by deprivation of fluids. He states that the treatment of pleuritic effusions remaining stationary after cessation of the acute stage is most unsatisfactory, and that even the results obtained by thoracentesis have not been so constantly successful as to leave no desire to confine this treatment solely to those cases in which all other treatment has proved useless. He then goes on to show that Niemeyer and Liebermeister have obtained most striking results in many cases of dropsy, both those accompanying Bright's disease, and also in other forms, by energetic diaphoresis, by which more water was removed from the body than could be taken in during the same period—a fact which Niemeyer has proved years ago by repeated and careful weighing of the patient. Thus a concentrated condition of the blood is obtained, greater than can be procured by the active use of diuretics, which are uncertain, or of purgatives, which are dangerous. And Ziemssen recommended this procedure in cases of stationary effusion following pleurisy. The deprivation of all fluids is, however, a simpler mode of producing the same effects, and has been employed for years by Niemeyer in acute cases of pleurisy, and quite recently he employed the same measure successfully in a case of tolerably recent pleuritic effusion. The patient, a robust and healthy man, aged 42, had an attack of sub-acute pleurisy, commencing on the 5th of November; on the 20th he came to hospital. On examination, his right pleura was found full of fluid as high as the third intercostal space; there was no fever. The patient was anxious to get well quickly, and declared himself willing to submit to anything; he was therefore told to give up the use of fluids in every form for a few days, and to live solely on bread and slightly pickled sausages. On the very first day, and still more on the next day, the patient complained grievously of the disagreeableness of the cure. He took but little bread or sausage, because his mouth was so dry that he could not swallow them. He asked at least to be allowed a piece of apple occasionally, acknowledging that he had drunk nothing, but had licked with his tongue the drippings on the window-sill. During the first twenty-four hours the entire urine amounted to 550 cubic centimetres (576·936 cctm. = 1 pint), the urea amounting to 4·4 per cent. Next day the urine only amounted to 450 cctm., and the urea to 6 per cent. Already the patient declared that he was decidedly less oppressed, and the stairs were easier to ascend than they had been a few days previously. He was allowed to drink half a pint of wine and a cup of coffee. On the 23d November, the third day, his urine was 420 cctm., urea 6·8 per cent. The upper edge of the effusion was below the nipple. From the 24th to the 26th November the patient received only half a pint of wine daily. For the whole three days his urine amounted to 1250 cctm. = 417 cctm. each day. The urea averaged 6·6 per cent. On 27th November the dulness was very little above the normal dulness of the liver, and pleuritic friction had been audible for the last two days. The patient can now run up stairs without difficulty. He was now allowed to eat and drink as he pleased; and as he had no appetite, and also had no stool for a week, he got a laxative. On the 28th November he was discharged cured, with a good appetite, and quite pleased. In another case, in which the same treatment was less energetically pursued, the treatment was only palliative and temporary.—*Berliner Klinische Wochenschrift*, Feb. 1870, No. 6.

ON THE TREATMENT OF THE CATARRHAL PNEUMONIA OF NURSLINGS BY CARBONATE OF AMMONIA.—Catarrhal pneumonia, broncho-pneumonia (the lobular pneumonia of Rilliet and Barthez), is a most dangerous disease in young children, whether it follows measles or simple bronchial catarrh, and has been declared by Rilliet and Barthez to be absolutely fatal when it attacks children under one year old; and though other practitioners do not look upon it in quite so strong a light, yet all are agreed that the prognosis is most unfavourable. Dr Stierlin considers that ammonia is almost a specific for this form of disease. In 1865 he had to treat an epidemic of malignant measles, and following it he had within ten days twenty-one cases of catarrhal pneumonia, eleven of them being children under one year old. He treated these cases in the usual manner, with emetics—ipecacuanha, antimonial wine, and calomel—stimulating the skin also freely with mustard, but in no case was any blood removed. To his horror, he saw the strength of his little patients rapidly sink; they became apethetic, short-breathed, and cyanotic, and on the fourth day three of them were dead. In his despair, he sought for a remedy to increase the energy of the bronchial muscles and the heart, believing that the evil results were due to the paralyzing of the muscles with carbonic acid. He tried the preparation of ammonia, and his success was such as to assure him that he had got the right remedy at last. The patients recruited after the first few doses, the heat and fever ceased, the cyanotic hue disappeared, and the pneumonia took a favourable course. Dr Stierlin lost no more patients during the whole epidemic, which lasted three months longer, and gave rise to twelve more cases of broncho-pneumonia. Since that time he has treated about 150 cases, of whom he has only lost seven, five of them having been seen for the first time after extensive atelectasis had been formed, and the disease already far advanced. One case was complicated with meningeal effusion, and the other was a feeble two-months-old child, who took the disease after measles, who had also chronic bronchitis, atelectasis, emphysema, and anæmia; and yet even in this unfavourable case, the use of ammonia was at once followed by a marked improvement. Dr Stierlin considers ammonia indicated whenever a young child is seized with catarrhal pneumonia, either after measles or bronchitis. If the patient is less than eight months old, or feeble, the ammonia is given from the first and alone, employing sinapisms also. But when the children are stronger or older, he gives them first an emetic, wraps them in a wet sheet, and applies ice over the chest, giving the carbonate of ammonia on the second or third day. This is immediately followed by a great alleviation of the symptoms, and rapid decrease of the fever. No injurious results have ever been observed. When the fever is gone, expectoration is favoured, when necessary, by sulphur. aurat. or Flores Benzoës, usually giving iron to wind up with. The action of the ammonia is in all such cases most remarkable, almost magical, and no preparation seems so useful as the carbonate, of which 20 grains may be dissolved in two ounces of fluid, and given in teaspoonful doses every hour at first, subsequently every two hours; older children, of course, to have a larger dose than younger ones.—*Berliner Klinische Wochenschrift*, June 1870, No. 26.

[From an experience which dates back now five-and-twenty years, we can fully confirm all that Dr Stierlin says as to the magical influence of carbonate of ammonia in the catarrhal pneumonia of children. We are not so certain of his other remedies.]

TURBITH MINERAL IN CROUP.—Dr Fordyce Barker, Clinical Professor of Midwifery and Diseases of Women in Bellevue Hospital Medical College, New York, in a letter to Dr Jacobi, editor of the "American Journal of Obstetrics," details the results of his treatment of this most fatal disease by the subsulphate of mercury, the hydrargyri oxidium sulphuricum of the old Dublin Pharmacopœia, the hydrargyri sulphas flava of modern chemical nomenclature. Dr Barker commences by pointing out what he considers to be true croup, as distinct from œdema glottidis and laryngismus stridulus on the one hand, and dipththeria on the other. True croup he regards as a catarrhal laryngitis, running into what is called pseudo-membranous croup, both being essentially the same disease, differing only in intensity and extent of tissue involved. Success in the medical treatment of this disease, he considers, can only be obtained by the early use of efficient remedies, while in the advanced stage, when life is endangered by asphyxia, our only hope is in tracheotomy. Dr Barker always commences the treatment by an emetic of turbith mineral, in doses of from three to five grains, according to the age of the child. If it does not act in fifteen minutes, a second powder is directed to be given; this, however, is rarely necessary, and the second dose, if required, acts at once on reaching the stomach. He prefers this emetic to alum and ipecacuanha, for its tastelessness and facility of administration, as well as its promptness in action; it does not exhaust and depress like antimony, and it is much more effective as a revulsive and sedative than sulphate of copper. He considers that it depletes the laryngeal mucous membrane by the abundant secretion which it causes, while the forced expiration which it causes removes from the larynx any albuminous or fibrinous exudation which may be there in a diffluent state before it has time to become a pseudo-membrane. At his second visit, if the child present simply the signs of catarrhal laryngitis, opium in some form is relied upon as specific; but should the child have a quick pulse, hot skin, hurried breathing, and occasional ringing cough, but no thoracic râles, it is directed to be kept quiet in bed, comfortably covered, but not too warm, and to have tincture of veratrum viride every second hour, in one or two drop doses, according to the age of the child, along with eight drops of the sweet spirits of nitre. The child is visited every eight hours, and the dose of the medicine increased or diminished, as may be necessary, from its effect on the pulse. Dr Barker is never satisfied until the pulse is brought below 80 per minute, and the veratrum is then continued in half the dose found necessary to bring it down to that point. If thoracic râles and hurried and laboured respiration be present, carbonate of ammonia in two-grain doses is substituted for the spirit of nitrous ether. In the later stages, when the respirations are irregular, the paroxysms of cough less marked, and the cough itself husky instead of ringing, he gives about two grains of carbonate of ammonia and of quinine (ʒss. in ℥ij.) in a senega mixture, every four hours. For nearly twenty-eight years, this has been Dr Barker's invariable treatment of croup, and he boasts that he has never lost a case, while the correctness of the diagnosis has been in many cases proved by the expectoration of false membrane, sometimes forming perfect casts of the larynx and trachea down to its bifurcation.

In some remarks by Dr Jacobi, he mentions that Dr Meigs, in his Treatise on the Diseases of Children, mentions the turbith mineral as an emetic, on the authority of Dr Hubbard of Hallowell, Maine, who says it is prompt and certain, and never followed by catharsis or depression. He also states that Drs Desmartis and Bouché de Vitray, in a monograph on a "nouveau traitement du croup et des angines couenneuses," published at Paris in 1860, claim for the turbith mineral a very remarkable success in the treatment of these diseases, reporting twelve cases of croup in patients from two to twenty-three years of age, with uniformly good results. Turbith mineral was administered as an emetic, which always brought up membranes. The juice of euphorbia was used as a topical application or gargle; and in a few cases counter-irritation over the throat, or a mustard bath, were also resorted to.—*American Journal of Obstetrics*, May 1870.

A NEW TONIC.—A tonic bitter, possessed of distinct alterative and gently laxative properties, is certainly a useful addition to our materia medica. These properties are claimed by Mr Nárayan Dájí, a graduate of the Grant Medical College, Bombay, for the Ailantus excelsa, a tree belonging to the natural order Simarubaceæ, and resembling in medicinal and physiological properties the Picræna excelsa, or Jamaica quassia tree, besides possessing a few of its own—especially a distinctly alterative action, increasing secretion from the liver, indicated by the colour of the stools changing to yellow. It forms, therefore, an admirable tonic in dyspepsia accompanied by habitual constipation, especially where this arises from want of tone in the general system, and where it is conjoined with hæmorrhoids. It may be used in decoction, or infusion which is better, in tincture and extract, the part employed being the bark, and the active principle being ailantic acid.—*Pamphlet forwarded by author.*

KOUMISS.—Those who have read the travels of Marco Paulo and others are well acquainted by name with the far-famed beverage called Koumiss, prepared by the Tartars from fermented mare's milk. In 1784, an account of its therapeutic value, by Dr John Grieve, formerly surgeon in the Russian army, was communicated to the Edinburgh Royal Society by Dr Black, and published in their Transactions, but it failed to excite any attention. Quite recently a Dr Victor Jagielski, late of the Prussian army, has endeavoured to revive it as a cure for all diseases attended by emaciation. It may be prepared from milk of any kind; and as sent out by Dr J.'s agent, E. Chapman of London, it resembles aerated buttermilk of excellent quality, with a faint aromatic flavour, which some liken to bitter almonds. It is pleasant to drink; and, without claiming for it all the marvellous properties ascribed to it by the author of the pamphlet, it is an unquestionable addition to our dietetic remedies capable of doing good service when other forms of milk disagree.—*Pamphlet forwarded by the author.*

RESULTS OF THE INJECTION OF PARASITIC SPORES INTO THE BLOOD OF ANIMALS.—The interesting discoveries of Hallier, Zurn, Chanveau, and Davaine, that there is contained in the blood, in several contagious diseases, numerous parasitic growths, known as micrococcus, mycothrix, leptothrix, etc., have stimulated further investigations in this comparatively new field; among the more recent of which, are those of E. Semmer, prosector at the Veterinary Institute at Dorpat, reported at length in *Virchow's Archiv* for April 16, 1870. His experiments consisted first in the repeated examinations of the blood of animals which had died of contagious diseases, with the view of detecting therein any parasitic growths, and his results may be briefly summed up as follows:—

In cases of glanders, micrococcus-cells and bacteridæ are found in the blood, lymph, and pus, in animals which have died of this disease.

In charbon (malignant vesicle), and septicæmia, the blood is found to contain numerous micrococcus-cells and bacteridæ (micothrix and leptothrix), both in the form of simple filaments and arranged together so as to form a chain, the latter growths having been long known under different names.

That these infusoria, having the form of slender cylindrical filaments, really are parasitic growths, was proved in the case of five pigs, which had died of septicæmia.

In the blood of these animals, the actual growth of the filaments from the micrococcus-cells was demonstrated under the microscope. The bacteridæ seen in cases of charbon are, for the most part, shorter, more slender, and have a less distinct outline, than those found in septicæmia, where they vary in length, and consist of a single well-defined filament, and are, at the same time, less numerous than in the former disease.

These filaments, however, are not always of the same form, even in charbon, for here also variations are noticed, so that, at times, the parasitic growths in this disease resemble, both in form and size, those found in septicæmia.

These parasites, moreover, are found in other diseases characterized by blood-poisoning, and even in the blood of some healthy animals a few micrococcus-cells (penicillium glaucum) have been found, and in other cases both leptothrix and micrococcus (bacteridæ) have been seen in the liver and intestines.

In order next to determine whether the contagious diseases above referred to are really caused by the parasites found in the blood, the author has tried a series of experiments, with the following results:—

Penicillium-spores, of the size of a red blood-corpuscle, were mixed with distilled water, and then injected by means of a small subcutaneous syringe into the jugular veins of two colts. The animals remained perfectly well, however, after the injection.

Several weeks later, micrococcus-cells were injected into the same animals, and here again the injections were not followed by any symptoms of disease.

Injections of anthrococcus-cells were likewise followed by negative results.

A second series of injections was next made with large masses of the spores of penicillium glaucum. In these cases, slight feverish symptoms were created, which soon disappeared, however, and, upon an examination of the animals after they had been killed, all the organs and textures of the body were found to be quite normal.

The author next injected bacteridæ from the blood of an animal affected with charbon, using in this instance a bottle with a glass tube attached, as recommended by Hallier.

The spores of this parasite were put into distilled water, and a few drops of this mixture were then forced into the jugular vein of a colt. At the end of five days the animal remained, to all appearance, quite well.

Five days after the first injection, two ounces of the same fluid, containing bacteridæ and micrococcus-cells, were thrown into the jugular vein of the same animal, by means of a large syringe, armed with a small needle-like canula. This was followed by symptoms of fever, without loss of appetite, and the animal appeared soon to recover. On the tenth day after the inoculation, however, fever again set in, the appetite failed, the animal exhibited an unsteady gait, and died during the night.

The following was the result of the autopsy:—

In the neck, around those spots where incisions had been made for the purpose of injections, the connective tissue was thickened and infiltrated with serum, exhibiting here and there ecchymosed patches. The jugular vein was filled with a dark-coloured blood of the consistence of tar, but otherwise not changed. Lower down on the neck there was well-marked serous infiltration in parts remote from the point of injection.

On the left shoulder there was extensive extravasation of blood beneath the superficial integument, involving the connective tissue, and extending down beneath the muscles. In the abdominal and thoracic cavities and pericardium slight serous exudation. Numerous ecchymosed patches in the peritoneum, intestines, pleuræ, heart, and lungs. Spleen enlarged, friable, and gorged with blood. Liver of a yellowish-brown colour, and the microscope showed beginning fatty degeneration in this organ. Kidneys studded with large, yellow, hardened and congested masses; while fatty degeneration of the epithelial cells of the uriniferous tubules communicated a yellowish-gray colour to these entire organs. Lymphatic glands enlarged, softened, and several were of a brownish-red colour, caused by extravasation of blood. Brain and spinal cord infiltrated with serum, while the minute bloodvessels were distended with blood. Ventricles filled with a clear, colourless liquid. The blood was everywhere of a dark-brown colour, of the consistence of tar, and contained large numbers of parasitic growths, characteristic of charbon.

Here, then, charbon was produced in a colt by the injection of parasites taken from the blood of animals affected with that disease. In this instance the symptoms broke out on the ninth day after the injection, death occurring on the tenth day.—*Dr A. H. Nichols, in Boston Medical and Surgical Journal.*

ARSENIC IN IRRITATIVE DYSPEPSIA.—Dr J. C. Thorowgood, in the *Practitioner*, speaks highly of the action of arsenic in many diseases of the stomach. He has found that one-drop doses of Fowler's solution in half an ounce of infus. calumbæ had the effect, in a case he treated, to allay the pain, to stop the vomiting of the food, and to enable the patient to eat and digest small quantities of mutton. He states that the small irritable tongue, with projecting papillæ and yellow or gray fur, indicate arsenic. The more purely local the gastric symptoms, the better is the chance of arsenic doing good.

When there is much general exhaustion of system, with disordered urine or hepatic congestion, it does not promise much.

[We can confirm this account of the good effect of arsenic in irritative dyspepsia.—ED. *Edin. Med. Jour.*]

SUBCUTANEOUS INJECTIONS OF ARSENIOUS ACID IN SKIN DISEASES.—Dr Lipp publishes, in the *Arch. für Dermat. und Syph.*, Nov. 3, 1869, two cases of psoriasis and three of chronic eczema, which were cured by hypodermic injections of arsenious acid. In the former the result of the injections was satisfactory, after the internal use of Fowler's solution had failed. The cases of eczema are not so conclusive, as other means besides the injections were used. In the first case of psoriasis, eight grains of arsenious acid were injected in forty-eight days, and in the second, four grains in thirty-eight days. The author gives minute details respecting the phenomena observed during the injections, and states that he does not mean to infer from so few cases the superiority of the injections over the internal use of arsenic; but he merely observes that in favour of the former he might mention—the certainty of absorption, the non-interference with the organs of digestion, the small doses used, and the short treatment. As quinine and other remedies are now frequently injected, a time will probably soon come when the stomach will rarely be troubled with medicinal substances.

Part Fifth.

MEDICAL NEWS.

THE LATE PROFESSOR SIMPSON.—A meeting of the physicians of the United States present in Washington, D.C., was held at the Army Medical Museum, on 9th May 1870, to take appropriate action on the reception of the news of the death of Professor Sir James Y. Simpson. The meeting was called to order by Dr J. C. Hall, member of the medical profession of Washington, and organized by the appointment of a president, four vice-presidents, and a secretary, as follows:—

President, Dr Thomas Miller; secretary, John L. Sullivan, of Massachusetts; vice-presidents, Drs Clymer, United States Navy; Noble Young, District of Columbia; J. K. Barnes, United States Army; L P. Bush, of Delaware.

Immediately after the meeting had been called to order and its officers elected, the call for the meeting was read by the secretary.

Dr H. R. Storer, of Boston, then spoke as follows:—

Mr Chairman and Brethren of the Profession,—It is with the deepest grief that I announce to you the decease, of which I have learned by cable despatch from his son, of Professor Sir James Y. Simpson, of Edinburgh. That our friend had himself prepared me by messages from his dying bed for his departure renders the loss none the easier to be borne. His very fortitude in his suffering, and his resignation to the Divine will, but revealed a more profound depth and a lovelier beauty in his character, with which it was but the harder to part.

Dr Simpson was so universally known to our profession throughout the world, as he was, indeed, to mankind at large, that I need enter into no detail concerning his history. He rose from the obscurity of a country village to be the favourite of his sovereign, the peer of the highest literary and scientific authorities, the cynosure of the medical and surgical intellect of this century. It was as if by magic, but his only talisman lay in the perfect bravery, persistency, sincerity, and simplicity of his life. Quick to perceive, he was equally apt in executing. He expended no unnecessary force, he begrudged no required effort. He was not merely the skilled accoucheur, but the thoughtful, wise gynæcologist. His suggestions regarding acupressure, now in daily practice, have placed him as a surgeon side by side with Ambrose Paré; while the revolution achieved by him as to the fundamental idea of hospitalism entitles him to the glorious appellation of having been the modern father of medicine—a second Hippocrates.

There are those present who, from personal acquaintance with the facts, know that these claims are in no sense forced or overstated. At less than sixty he had accomplished all that has been said, and yet still in the fresh prime of his life, we hoped for even riper fruits from his vast experience. But it was not so ordained. His last professional work, sent to us from his deathbed, was for the vindication of the honour of one of our own countrymen, whose memory thus redeemed will be always embalmed in our hearts, conjoined with that of Simpson. His reply to the second letter of Dr Jacob Bigelow concerning the history of practical anæsthesia, communicated to the Gynæcological Society of Boston, and received through it by you at the session of the American Medical Association, just ended, went far to influence your decision as to the person to whom the honour of that glorious discovery, the most beneficent ever made since the foundation of the world, was really due. By a unanimous vote upon the last day of the session, and in pursuance of the recommendation of the Section of Practical Medicine, by whom the evidence adduced had been carefully scrutinized, you pronounced in favour of the late Dr Horace Wells, of Hartford, Conn. Upon the evening of the same day—his earthly labours thus beautifully ended—the spirit of Dr Simpson took its flight.

There would be no place in this country so fitting for these few words of eulogy, this poor utterance of our common gratitude, as the national capital, and this Army Medical Museum, filled as it is with the results of achievements, formerly impossible, is in itself his fitting monument. Coming together from the uttermost parts of the continent, we go hence to homes where his name is everywhere a household word, never to be forgotten so long as the primal curse, from which, through God's great grace, he took the sting, shall lie upon suffering woman. The nations shall rise up indeed to call him blessed, and blessed he is, if to have faithfully worked through his whole life in the Lord's vineyard, in season and out of season, cheerfully doing that which was given him to do, bearing up under the heaviest domestic afflictions, not resenting unkindly the sarcasms and ingratitude of petty men, assuming withal, for the dear Saviour's sake, His heavy cross, the jeers of sceptics and the taunts of those who daily crucify Him anew—if to have lived thus is to have gained entrance into the joy of the Lord, blessed he is indeed.

Of my own personal bereavement, I have now naught to speak. There may be those present, however, who will remember my language of fifteen years ago, in the preface to the American edition of those "Memoirs and Contributions," to edit which, in conjunction with Dr Priestley, now in London, it had been my great privilege to be selected. "Treating me as his son, I had learned to love him as a parent." As such, indeed, I have found the tie that is now broken. There are sorrows that cannot express themselves in words. I can only offer you the following resolutions. They will be found but feebly to convey what I know is in all your hearts.

Whereas it is an instinctive and very natural desire among men to lament with those who are in affliction, and to mourn with those who weep; and whereas it has pleased the Giver of both mortal and eternal life to call unto Himself His good and faithful servant, known upon earth as Dr James Y. Simpson, of Edinburgh; therefore—

Resolved—That in Dr Simpson American physicians recognise not merely an eminent and learned Scotch practitioner, but a philanthropist whose love encircled the world; a discoverer who sought and found for suffering humanity, in its sorest need, a foretaste of the peace of heaven; and a devoted disciple of the only true Physician, our Saviour Jesus Christ.

Resolved—That, in acknowledging for ourselves and our brethren the excellence of him who has gone, and in thus honouring his memory, we would tender to the members of his family in their sorrow our respectful sympathy.

Resolved—That a copy of these resolutions be sent to the widow of Sir James Simpson, and to the British Minister resident at Washington, with the request to the latter that they be transmitted by him to the several English medical journals, as a mark of the esteem felt in this country for the deceased.

After the reading of the resolutions by Dr Storer, Dr Wm. P. Johnston rose and said—

I rise, Mr President, to second the very appropriate resolutions which have just been presented, and which will, I am convinced, meet with the cordial and unanimous support of all now present.

Sir James Simpson is no more. In him science has lost one of her most earnest, original, and gifted students, society one of her highest ornaments, and humanity one of her greatest and most useful benefactors; and we have assembled to-day in this, the metropolis of our country, to pay a fitting tribute of respect to the memory of him, whose loss the profession and the civilized world will mourn, and to offer our sympathy and condolence to the afflicted and bereaved family of the deceased.

Mr President, when the American Medical Association met in Baltimore in the year 1848, a report was read by the Chairman of the Committee on Obstetrics, Dr Harvey Lindsly, of this city, detailing the result of his own experiments in the use of chloroform in labour, and urging its trial as an agent, which he believed would prove most valuable in alleviating suffering in the agonizing throes of travail. This subject was then new, and the profession was not prepared to give to the report their unqualified approval. In the debate which followed, one of the most distinguished professors of Obstetrics in this country entered his protest against the receipt and endorsement by the Association of the recommendations contained in the report.

But now, what a change time and experience in the use of chloroform in labour have accomplished in the medical mind throughout the length and breadth of this vast American Union! There is not a single well-educated physician, I will venture to assert, who is not prepared to unite with me in the declaration that this branch of the healing art is immensely indebted to that great discoverer of the anæsthetic properties of chloroform, for the evidence he afforded of its safety and beneficial effects in many cases of natural labour, but especially for its inestimable value in obstetrical operations. And as in the past, so in the future, with each revolving year, from every rostrum of our medical schools, the name of Simpson will be pronounced with feelings of respect and admiration, for his many valuable contributions to the advancement of obstetric science.

Dr George A. Otis, United States Army, then rose to make the acknowledgments of the army surgeons for the great discoveries of Dr Simpson, as follows:—

Mr President and Gentlemen,—As we progress in the journey of life, it would appear as though the milestones were gravestones, so rapidly do those whom we loved or revered in youth pass away. In a brief period we have been called upon to deplore the loss of Brodie and Velpeau, and Mott and Warren, and of many other illustrious teachers of our art, by whom our foremost men were instructed in the principles they are now imparting to the rising generation of physicians and surgeons. And we are now assembled to mourn the loss of one whose happy lot it was to be the benefactor, not of his profession only, but of all mankind; for the name of Simpson will ever be associated with those of the great discoverers who have benefited the human race. I wish that the acknowledgment of the incalculable indebtedness of military surgeons toward him might have fallen into abler hands, so that the wisdom and courage which he manifested in the discovery of chloroform might be fittingly appreciated, and due honour paid to one who has conferred on army surgeons the greatest boon they have received since Ambrose Paré discovered the ligature, and who deserves, as well as Paré, to be called a man-loving, king-honoured, God-serving physician. This is not a time to refer to the disputes regarding the discovery of anæsthesia. Great as is my sympathy for him, I regretted the action of the Medical Association last week in ascribing it to Horace Wells, when the suggestions of Sir Humphry Davy, and even older philosophers, are so well known; but despite the claims of the French in behalf of Flourens, there can be no historical doubts of Simpson's discovery of the anæsthetic properties of chloroform. I could never agree with the opinions of Dr George Hayward and my friends from Boston and Philadelphia, relative to the greater danger in using chloroform rather than ether. But whether more dangerous or not, ether is not suited for use on the battle-field, because it is impossible for the attendants to carry an adequate quantity of ether upon the actual field, whereas the surgeon may take on his person, in a flask, a sufficient quantity of chloroform to produce anæsthesia in all the cases he is likely to be called on to attend. You well know the history of the use of chloroform in the Crimean and Italian campaigns, where it was employed without a single disaster; and I am informed by Langenbeck and Stromeyer that a similar result attended the seven weeks' Austro-Prussian war. In our own unhappy struggle, chloroform was administered in more than one hundred and twenty thousand cases, and I am unable to learn of more than eight cases in which a fatal result can be fairly traceable to its use.

Of acupressure I have but little personal experience, and of those great improvements in obstetric science made by Sir James Y. Simpson, none; and shall leave them for others to commend, and close with the prayer that he who saved so much suffering in others may rest in peace.

Dr George Clymer, of the Navy, then referred in a few feeling remarks to the great obligations of the medical staff of the navy to the illustrious deceased. Without the beneficent method of producing anæsthesia discovered by Dr Simpson, he thought it would hardly have been possible to have performed some of the operations undertaken during the late war, for the terrible mutilations produced by the projectiles of modern warfare.

Dr C. C. Cox then spoke as follows:—

Mr President,—I have studied no language of laudation to offer upon this occasion, having but a short time since heard of the demise of the distinguished savan, whose virtues we are assembled to commemorate.

No one, I am sure, read the announcement in the morning papers of the death of Sir James Y. Simpson without a thrill of the keenest emotion. The telegraphic despatch, although starting from a point thousands of miles distant, comes to us in the form of a personal bereavement. We feel as though some mighty spirit had fallen away out of our own immediate ranks, so completely do the name and virtues of Dr Simpson penetrate all communities of civilized men.

I do not rise, Sir, to enlarge upon what has already been so appropriately said by the gentlemen who have preceded me, but it is pleasant to speak of the illustrious dead; and although we add nothing to their fame by these demonstrations, and contribute nothing to their benefit, salutary lessons are presented to survivors when we hold up to public admiration and imitation the memorials and examples of those who have deserved and secured the favourable opinion of their fellow-men.

Industry, Sir, is not natural to man. Honour, gain, and necessity, are its prompters. In the instance of Dr Simpson it was a duty and a joy. But, notwithstanding his constant and earnest scientific labours, he always found time for social enjoyments, and those amenities which constitute so large a share of our daily happiness. Distinguished as Sir James Simpson was in the specialities to which so much of his life was devoted, he can hardly be said to have been *homo unius libri*, since he acquired distinction in physics, belles-lettres, and theology. It may be said that he was the Mæcenas of the ancient and classic city of Edinburgh. His house was ever open to men of letters, and his breakfast-table especially (as I have good reason to know) was never without representatives of the various departments of useful knowledge. It was on these occasions that his genial character, unobtrusive modesty, and vast attainments were most conspicuously manifested.

To Americans he was especially kind and courteous. I remember most gratefully my own cordial reception at his hands. It was my good fortune to be under his roof, to ride with him on his daily professional rounds, and to visit his modest infirmary, so familiar to my friend Dr Storer, and I can truly say that my intercourse with that great and good man are among the most agreeable recollections of my foreign sojourn.

Standing, as it were, by the open grave of our illustrious friend; pointing, as it does, to our own frail mortality; how empty seem to us all worldly distinctions! How petty the jealousies and struggles which fill our own brief space of existence! As we cordially vote upon the resolutions offered, let us hope that our own lives may be marked by useful achievements, and that over our dust may rise the fragrant memory of good deeds!

General R. D. Mussey then rose and said:—

Mr Chairman,—I appear here only by you courtesy, in one sense, for I am a layman; but in another and larger sense, I am here of right, for to me, too, the news of Dr Simpson's death was the intelligence that I had lost a benefactor. I know it is somewhat presumptuous in me to undertake to represent the loss which the men and women who know your noble profession, Sir, not to practise it but to be benefited by it, feel in the death of this great man. And yet I cannot refrain from saying how earnestly, how sincerely, how heartily we deplore it. There are none of us that have not through ourselves, or through those that were dearer to us than ourselves, been the partakers of the bounty that his courage and science has given to humanity. I feel, Sir, that I cannot return their thanks who through him have had the terrible pains of maternity relieved, if not destroyed; no woman, Sir, who is a mother, but her eyes will grow moist as she reads the sad news the cable has flashed to us, and her heart frame, if her lips do not utter, thanks to the Lord for the life whose termination we deplore. "Whose termination," do I say? No, Mr Chairman and Gentlemen, his life has but just begun. No man lives till he has given away his life for others, and that Dr Simpson has done. I know of few grander pictures of heroism, of self-sacrifice, of high Christian courage, than that which the popularly received account (and it is the correct account, too, as I am assured by Dr Storer) of the discovery of chloroform by Dr Simpson affords. Dissatisfied with the sulphuric ether heretofore used for anæsthesia, he, with his students, shut himself in his laboratory, and tried the various effects of the contents of its many vials. Think of it, Sir, standing there confronting unknown dangers, experimenting with subtle and potent essences and re-agents, caring nothing for himself, or his safety, or his own life, if only he might help others' lives. Such scenes show that though your professional man may sometimes school and repress his emotions that cooler judgment may aid his client or his patient, yet a warm heart beats behind the scientific brain, and nerves it for its work. Such a meeting as this shows that you of his profession deplore Dr Simpson's loss not only as a physician, but as a man; and that you are bound to him by ties of humanity as well as of science. Unable to fully appreciate, as you do, his scientific attainments and superiority, I can yet join with you in your admiration of him as the Christian man, the lover of his race, the benefactor of his kind, who, supplementing the discovery of anæsthesia by the discovery of the most efficient means of producing it, and by its application to, I do not hesitate to say, its noblest and most beautiful use—that use for which, if need be, we would surrender all others—has placed himself beside that discoverer on the highest niche of the benefactors of mankind, and won an immortality as permanent as human suffering, and as grateful as human thanks for heavenly mercies. I know not, Mr Chairman, what shall be placed upon his tombstone; but when I think of his great benefaction to man and woman, when I remember his unwearied incessant activity in the Lord's work, those precious words of the Psalmist come to me as showing at once what the Lord has done for him, and what, in humble imitation of the Great Physician, he has done for others: "He giveth his beloved sleep."

After remarks by the other members of the meeting, Dr A. Y. P. Garnett moved that the proceedings of the meeting be sent to all the daily journals of Washington, with abstracts of the remarks made.

Dr Noble Young suggested that a copy of the minutes be sent to the Permanent Secretary of the American Medical Association, which was agreed to.

Dr Hall then moved that the members should sign the resolutions.

The meeting, which comprised a large number of the principal medical men of the district, and also many from distant parts of the country, then adjourned.

SCIENCE IN HANGING.—A convict, named Andrew Carr, was executed in Dublin, on the 28th of July. The length of the drop was fourteen feet, and this distance was calculated in accordance with Professor Haughton's formula. "Divide the weight of the convict in pounds into 2·240, and the quotient will be the required length of the drop." This formula was arrived at after studying the records of execution by hanging, and finding that in the ordinary fall three or four feet, and even in two instances, seven and a half and eleven feet, were insufficient to produce either dislocation or fracture, but that death is usually the result of slow and painful strangulation. Professor Haughton then ascertained that "the shock of a ton dropped through one foot, is just sufficient to fracture the anterior articular surfaces of the second vertebra at their contact with the atlas, and that this force allows the shock to fall upon the medulla oblongata so as to produce instantaneous death." How this conclusion was arrived at, is not stated in Professor Haughton's paper, but presumedly by experiment; and in one instance, where a convict was scientifically shuffled off, in accordance with this principle, the vertebra was fractured as described, and the neck stretched a full inch and a half.

In the present case, however, when the man fell, "his head was completely severed from the trunk, all the parts being divided equally across, and the second vertebra was fractured." This distressing occurrence was made the subject of a judicial investigation, the object of which was to determine whether the drop of fourteen feet was so long as to necessitate this result. The physician of the Bridewell where Carr was executed stated he had acted wholly in accordance with the scientific data above stated. He mentioned other instances in which the long drop was used, and one in which the force (weight 168 pounds and drop 16 feet) was, according to Haughton's formula, equivalent to a ton and a quarter, and yet decapitation did not take place. The testimony of a practical ropemaker, however, seemed to throw more light upon the question. He showed that the rope used, owing to the peculiar way in which it was made, was incapable of the smallest degree of resiliency—a property of all good rope, and he attributed the accident to this fact rather than to the length of fall. If the rope in Carr's case had been properly made, it should have sprung two feet. Out of a number of ropes placed before him he picked out one, which he said from its make would insure this necessary spring. This, it turned out, was the very rope with which another convict had been hanged, and it was noticed that, at the moment of the fall, it did become thus elongated and spring back again. The conclusion seems to be, from all this, that the length of drop as enunciated by Haughton's formula is not excessive, but that due attention must be paid to the quality of the rope employed.

Suicides.—In England persons who attempt the destruction of their lives are not left unquestioned. They are taken in charge by the police, and, if uninjured, are examined at once by a magistrate. If so disabled as to require medical treatment, they are conveyed to some hospital, and not lost sight of by the police until the case has been passed upon by the magistrate. He may either commit them, or give them in custody to any friend who will give security for their restraint. All this has been so long discontinued in America, that the idea of crime is no longer connected with such attempts. The universal presumption is that the person who attempts self-murder is insane, and, therefore, not amenable to judicial inquiry. To commit the felony of suicide, as defined by Blackstone, a person must be of years of discretion and of sound mind. Suicide as a crime is no longer recognised in this country, and the term ceases to be applicable. No penalty is inflicted for the attempt, and posthumous proceedings against the estate are unknown in America.—*Philadelphia Med. and Surg. Reporter.*

NECESSITY FOR FOREIGN CATTLE MARKETS.—Food supply is an imperial question, and the legislature ought to make such broad and general regulations on the subject, as would benefit the nation as a whole, without contravening the principles of free trade. The home cattle and meat markets should be separate from the foreign; and special regulations should be made for the latter that are not required for the former. Such a separation would in the end be advantageous to both departments of this important trade. The home breeders, dealers, and salesmen, are on the whole in favour of separate and distinct establishments; the foreign cattle traders would be largely benefited by the increased accommodation for, and development of, their trade; and the public, always more or less afflicted by the dearness of meat, would gain immensely by a larger supply, in better condition, and with improved arrangements for slaughter and distribution.—*Food Journal.*

THE CHOLERA.—It is much to be feared that the horrors of pestilence will, ere long, be added to those of war; nor can it be a matter of wonder. The cholera has appeared at Odessa, Rostow, Kertch, and Taganrog, in S.E. Russia; and will, in all probability, follow its usual track, until it arrives in this country. It is frightful to think of the number of victims which it will snatch from amongst the crowded, ill-fed, and wounded populations which now fill the frontier towns of Germany and France. But are we, who are not suffering from these inflictions, ready to meet the cholera if it comes? Is our health machinery in such perfect order, that we can calmly face the epidemic and defy it? We think not.—*Food Journal.*

ON Wednesday, the 12th ult., the Prince and Princess of Wales visited the Royal Hospital for Sick Children under the guidance of Dr Matthews Duncan, Chairman of the Board of Directors, and of Dr Peel Ritchie and Dr Arthur Gamgee, the acting physicians. All of the wards, with the exception of the fever wards, which happened to be full, and which are the newest and perhaps the best part of the building, were carefully inspected by their Royal Highnesses, who expressed their great satisfaction with the comfort of the wards, and the attention bestowed upon the little patients.

ON Thursday the 13th, the foundation-stone of the New Royal Infirmary was laid by the Prince of Wales with masonic honours, in presence of a large and enthusiastic assemblage. The weather, which had been very stormy for two days before, was, on the whole, favourable, although the sky was overcast, and there was an occasional slight fall of rain. During the progress of the royal party through the streets, and while the ceremony was being proceeded with, the weather cleared up a little, and the entire proceedings passed off most successfully. As our readers are aware, the event had been looked forward to with considerable interest, not only in Edinburgh, but throughout the country, as the Royal Infirmary is not merely a local but a national institution; and the masonic lodges cordially responded to the invitation of the Grand Lodge to take part in laying the foundation-stone. Upwards of 4000 Freemasons joined in the procession, representing above 170 lodges.

We may here briefly state the circumstances connected with the proposal to erect the new Infirmary. In their last report, the Acting Committee stated that towards the end of 1868 a very general feeling began to be expressed that it was desirable not only that the Medical Hospital should be rebuilt, but that a new Infirmary should be erected which should also embrace the Surgical Hospital; and further, that the grounds of George Watson's Hospital presented a much better site for the purpose than the present one, even with the addition of the ground occupied by the block of buildings opposite to the University. Difference of opinion seemed to prevail on the subject. The matter was brought under the attention of the annual meeting of the Court of Contributors of the Royal Infirmary, and at an adjourned meeting of that body, held in Queen Street Hall on the 19th March 1869, it was resolved, on the motion of Professor Syme—" I. That the new Infirmary shall afford accommodation for surgical as well as medical patients; and, II., That the new Infirmary shall be built on the grounds of George Watson's Hospital." The managers of the Infirmary, with a view to the carrying out of these resolutions, entered into communication with the Governors of George Watson's Hospital, to ascertain whether the hospital and grounds and house in Wharton Lane would be sold. The governors, considering the object for which these properties were required, expressed their willingness to dispose of them at a fair price; and, after consultation with duly qualified professional gentlemen, they fixed the price at the sum of £43,000. The managers of the Infirmary considered it to be their duty to accept of the proposed terms of sale, subject to their being afterwards in a position to transfer the Infirmary from its present locality. An Act of Parliament was obtained, and the plans were then prepared. The total cost of the grounds and building has been estimated at above £100,000. The sum subscribed is about £80,000. The amount paid with interest is nearly £64,000, which is invested in various ways, yielding on an average about 4 per cent. Several of the larger subscriptions are not payable till the building has so far progressed. The Acting Committee have resolved to pay over the money to the managers, in terms of the Act. This will be done when the report of the auditor, Mr J. M. Macandrew, is submitted. The report is completed, and will be formally approved of in the course of a few days. The trustees who have the money invested in their names are—Mr Thomas J. Boyd, Councillor Colston, Mr L. Robertson, and Mr David Smith.

The plans of the new Infirmary have not yet been finally approved of; but they were several weeks ago submitted by Mr David Bryce, R.S.A., to the managers and leading members of the medical profession principally connected with the existing institution. The reports of these gentlemen have yet to be made, but it is not anticipated that any proposals which may emanate from them will interfere with the main features of the design. When completed, it is proposed that the Hospital shall contain 260 beds for surgical cases, and 340 for medical cases, or 600 beds in all, exclusive of 148 beds in reserved wards, 48 of which are surgical, and 100 medical; and also exclusive of a small fever hospital containing 40 beds, intended solely for teaching purposes. The hospital is arranged on the pavilion principle, the pavilions running north and south. It will be fitted up with all the most recent improvements in internal arrangement; and as it is placed upon a gentle slope completely open to the south, and with the grounds of Heriot's Hospital between it and any buildings to the north, it will be, when completed, altogether unrivalled in Europe for amenity and salubrity of situation, and, we trust, also in convenience and completeness of internal arrangement. The Prince has since sent a cheque for £100 in aid of the building fund.

PUBLICATIONS RECEIVED.

Edward Balfour, L.R.C.S.E.,—Statistics of Cholera. Madras, 1870.
A. W. Barclay, M.D.,—Manual of Medical Diagnosis. London, 1870.
C. Black, M.D.,—Clinical Examination of the Urine. London, 1870.
W. H. Corfield, M.B.,—Treatment and Utilization of Sewage. London, 1870.
Dottore Malachia De-Cristoforis,—L'Ago-Elettro-Puntura Negli Aneurismi dell' Aorta; Il Raddrizzamento Meccanico delle Flessioni Uterine; Aneurisma dell' Aorta Ascendente; Altre tre Applicazioni d'Elettro Ago-Puntura Negli Aneurismi dell' Aorta. Milan, 1870.
Samuel Gee, M.D.,—Ausculation and Percussion. London, 1870.
Dr Victor Jagielski,—Koumiss, and its Use in Medicine. London, 1870.
R. Liebreich, M.D.,—Atlas of Ophthalmoscopy. London, 1870.
W. T. Lusk, M.D.,—On the Origin of Diabetes. New York, 1870.
A. Moffitt, Staff Assistant-Surgeon,—Manual of Instruction for Attendants on Sick and Wounded in War. London, 1870.
John C. Murray, M.D.,—Snuff-taking; its Utility in preventing Consumption, etc. London, 1870.
A. B. R. Myers,—Diseases of the Heart among Soldiers. London, 1870.
Joseph G. Richardson, M.D.,—Handbook of Medical Microscopy. Philadelphia, 1870.
Henry Sewill,—Irregularities and Diseases of the Teeth. London, 1870.
Andrew H. Smith, M.D.,—Oxygen Gas as a Remedy in Disease. New York, 1870.
William Stewart, M.D.,—Chloride of Ammonium in treatment of Hepatitis. Rangoon, 1871.
Thomas Stratton, M.D.,—The Celtic Origin of the Greek and Latin Languages. Edinburgh, 1870.
Stricker's Manual of Histology, Vol. I. Translated by H. Power.
Transactions of St Andrews Medical Graduates' Association, 1869. London, 1870.
David Waldie, F.C.S.,—The True Story of the Introduction of Chloroform into Anæsthetics. Linlithgow, 1870.
Andrew Wood, M.D.,—The Satires of Horace. Edinburgh, 1870.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Lecture Introductory to a Course upon Midwifery and Diseases of Women and Children.* By ALEXANDER R. SIMPSON, M.D., Professor of Medicine and Midwifery in the University of Edinburgh.

GENTLEMEN,—It is just thirty years since another took the place I am called on now to occupy. These thirty years have witnessed wondrous changes. Regions of the globe that had not been explored have been mapped out; nations and tribes that had before been isolated have been brought within the range of civilizing influences; the last fetters have been broken from the limbs of slaves; and shackles of the mind, more galling still, have happily been cast away. Science has been enlarging her boundaries on every side—reading many of nature's long-hidden secrets, sounding the depths of the ocean, and questioning the sun and stars as to their constitution until they have returned an answer. The railway, the cheapened postage, and the telegraph, have all the while been altering the conditions of social intercourse, so that those who were kept far apart in other days are brought together now, and what one man learns is soon the common property of multitudes. The science of the warrior has received the most astonishing development, and surely the sickening carnage on the fair fields of France means this, if it means anything, that the art of mutual destruction has nearly reached its culminating point. While thus on every hand progress was being made, it would have been a wonder if the science that has to do with the health of man, and the art that is devoted to the prolongation and protection of his life, should have remained behind. It has not done so. In every department of the science and art of medicine advances have been made, and not least in that which you and I are met to study and teach; and I have thought that it might prove a happy, heartsome task for us to-day briefly, very briefly, to glance at some of the principal achievements in the domain of Midwifery and the Diseases of Women that have been made during these thirty years.

MENSTRUATION—SPONTANEOUS OVULATION.

As we enter on the threshold of our subject, we are met by one of these advances. For, before the period at which our survey begins, the function which marks the transition from the girl to the woman formed a waste whereon there grew a crop of wild hypotheses. Before 1840, indeed, one or two observers had pointed out that the ovaries had an important part to play in connexion with each monthly period, and had expressed the opinion that in them should be sought the *primum mobile* in the whole train of menstrual phenomena. But it was reserved for that and the early years of the following decennium to see the full investigations of the subject (which we mainly owe to France), and the final establishment of the theory that menstruation depends upon the monthly ripening of a Graafian vesicle, and the discharge from it of a fully developed ovum. In a System of Midwifery (Campbell's), published here in 1843, the then recent explanation is curtly described and contemptuously discarded as a "fanciful hypothesis." Yet only a few years had passed ere the fanciful hypothesis was widely accepted as one of the most incontestable facts of physiology. The discovery of the connexion between ovulation and the monthly flow does not, confessedly, explain all the phenomena of menstruation. The cause of its periodicity, for example, still awaits a satisfactory solution. But it has let in a flood of light sufficient to dispel a host of erroneous conceptions, and has shown us that the explanation which satisfied the writer to whom I have referred, as well as many others, from twenty-five to thirty years ago, falls far short of the truth when they regarded menstruation as a mere secretion "regulated by the same laws which influence other secretions."

It has done more,—it has led to the recognition of the ovaries as the central dominating organs of the whole female economy, whose general condition, both in health and disease, is modified in an infinite variety of ways by the changes, natural or morbid, which occur in them.

STRUCTURE OF THE OVARY.

That organs having such an important place in the body should have attracted the attention of many observers for many years was what you naturally would have expected, and what has actually taken place; and especially within the last ten years most interesting discoveries in regard to their structure and development have been made. Yet even here the terminus of microscopical discovery is hardly reached. For it is only in the course of the current year that a German physiologist has published a work containing a series of observations which will call for a revisal of the descriptions of the ovaries in all our present text-books. These researches I shall have to describe to you more in detail some days hence. Let it suffice meantime to state that they furnish proof that the organs are—what some had previously supposed they might be—genetically and histologically of the nature of mucous glands; and the ovum from which the new individual may under proper conditions be developed, is demonstrated to be simply a differentiated epi-

EMBRYOLOGY.

The changes which the ovum undergoes consequent on its fertilization had already been the subject of many interesting observations, and various important points in connexion with the early development of the embryo had been ascertained and established. But when I remind you that it was only in the year 1838 that the "Microscopical Investigations" of Schwann unfolded the doctrine that the cell was the all-important element of every animal, which he showed to be composed, like every plant, of a congeries of cells, you will understand how 1840, and the years that followed, should have been richly fruitful in researches that led to a clearer apprehension of processes that had already been observed, and the observation of changes up till then unsought for and unknown in this department of our science. Schwann's great generalization gave the like mighty impulse to embryology which it gave to every other department of anatomy and physiology; and attention being now directed to cells and the cell elements, it was discovered that, as the germinal vesicle disappeared, an embryo cell took its place, which has to do with the cleavage of the yolk, and the subsequent development of those cell layers of which the blastodermic membrane is composed, and from which all the various tissues and organs and members are progressively developed, till out of a cell which cannot be distinguished by any power at our command from multitudes of cells precisely similar, there is at last evolved a being capable of independent existence, having features common to all the creatures of its kind, yet presenting individual traits which distinguish it from all the rest.

THE GRAVID UTERUS.

Ere these transformations have begun, the ovum has left the ovary in which it was produced to find a nidus in another organ, wherein a series of changes supervene, which have by many besides Swammerdam been reckoned a "miraculum naturæ." This gravid uterus will form one of our most engaging themes of study. The careful observations of Dr William Hunter, and his wonderfully correct representations, so true to nature, had set various important points regarding it in their proper light a century ago. One very important discovery he had made, viz. (I quote his own words), "that the internal membrane of the uterus, which I have named *decidua*, constitutes the exterior part of the *secundines* or afterbirth, and separates from the rest of the uterus every time that a woman either bears a child or suffers a miscarriage." This discovery, however, was not appreciated at the time. For many years false teachings in regard to it prevailed, and it was only within the last thirty years that the microscopical investigations of various anatomists confirmed Hunter's great discovery, and superadded further discoveries regarding the intimate composition of this membrane, and the transformations which it undergoes. With regard, moreover, to the nature of the structure which makes up the main part of the thickness of the walls of the uterus, it was reserved for the same era of active microscopical research to demonstrate its muscular arrangement and to trace out the marvellous development of its individual fibres, as well as to lead to a clearer apprehension of the changes that take place in the nerves and bloodvessels of the organ.

It might have been expected that the great anatomists of a giant generation, which is passing all too rapidly away, should have worked out the mine so exhaustively that little would be left for after explorers to discover. But a remark made by William Hunter in the lecture from which I have quoted holds good here. Speaking of the wide and warm reception with which Harvey's doctrine regarding the circulation of the blood was welcomed, "it was imagined," he says, "that everything in physic would be explained. But time and experience have taught us that we still are, and probably must long continue to be, very ignorant, and that in the study of the human body and of its diseases there will always be an extensive field for the exercise of sagacity."

THE PLACENTA.

This holds good in a very special manner in regard to the structure and functions of the placenta—the peculiar organ by means of which the fœtus is kept connected with the uterus. For, notwithstanding that the eyes of many of the most accurate observers and the minds of many of the most philosophical reasoners have been brought to bear upon it, its anatomy cannot yet be said to be perfectly made out; and only within the last twelve months, a series of processes have been described in it which had formerly been overlooked, formed of villi of the chorion that had not, like the others, been supplied with vessels, but that had got embedded in the substance of the decidua, apparently having it as their function to keep up the connexion between the fœtal and maternal portions, and sometimes becoming the point of departure for some of the morbid changes to which the placenta is liable. There are various points of no small importance in its anatomy which are subjects of dispute; and whilst physiologists are agreed as to the fact that the cells of the villi absorb the nutritive material for the growth of the fœtus from the maternal blood in which they bathe, the questions still await an answer, What are the specific substances which they absorb? and, What chemical changes do these substances undergo in the placental cells ere they pass into the current of the fœtal circulation? Still the increase to our knowledge during the past thirty years has been immense, and bears not only on the normal structure and functions of this organ, but on its pathological alterations. As it was not till the beginning of this period that the grand idea of a cell-pathology could be conceived, and as it was only after about a third of it had passed that the doctrine began to be promulgated which is yearly gaining fresh development, it will at once appear that the explanations of many morbid phenomena which had long before been noted in the placenta, in the membranes of the ovum, in the decidual membrane, and in the embryo, had all to be revised and often to be rejected, whilst morbid processes which had formerly been overlooked were now observed and appreciated; and so an ever-growing light has been and is still being shed on the subject of intra-uterine disease and death of the fœtus, as well as on the subject of those diseases of the maternal organs which lead to its premature expulsion.

DISEASES OF PREGNANCY.

Chemistry has come to the aid of histology in these researches, and by determining the changes which occur in the blood and the secretions of the pregnant woman, has led to a clearer understanding of her relationship to various febrile and other disorders. The nature of eclampsia, *e.g.*, of which so many pregnant, parturient, and puerperal women die, and which in every case appears so appalling, has only during this era been shown to be dependent primarily on some impairment in the function of the kidneys. Whether this result from pre-existent disease, or whether, as is more frequently the case in primiparous women, it be due to interference with their action arising during the course of pregnancy, we know that whenever we detect albumen in the urine, the patient is liable to have some of the material which should have been excreted by the kidneys retained in the blood, and circulating there it becomes a poison which at any moment may light up the hideous train of symptoms with all their heartrending consequences. The profession has not learnt these things without having been able also in some degree to counteract the mischief, by using measures to eliminate the poison, or administering appropriate remedies to counteract its agency.

TERMINATION OF UTERO-GESTATION.

And now, supposing both the mother and the embryo within her womb to have escaped the many dangers to which they are exposed, there comes a period when they must be separated. How soon this period may naturally arrive, and how long it may naturally be deferred, and what we may regard as its normal date, are all points which have been greatly cleared up during these thirty years, although cases may arise in which no medical witness would even yet be entitled to swear to impossibilities. To another question, viz., Why does labour supervene at that particular term? most unsatisfactory answers had previously been given. But since the true nature of the decidual membrane came to be fairly understood, it was natural to seek in the changes which it undergoes for an explanation of the cause of the occurrence of labour at the close of the ninth month of utero-gestation. The search has not been fruitless. For it has been found that in the natural course of development, the decidual membrane at this period has undergone a degree of fatty degeneration which has brought it to the last stage of its existence, when it would either require to be melted down and absorbed, or be thrown off as a foreign substance. The same change occurs in it at an earlier date if through some disease an end be put to the life of the fœtus, and in such a case expulsion of the dead child does not take place until time has been given for the degeneration to occur in the decidua, which leads to its being loosened from the uterine parietes and reduced to the condition of a foreign body. The observation of this phenomenon has led by a beautiful induction to the employment of the simplest, safest, and surest means of bringing on labour, by imitating the process of nature and producing an artifical separation of the membranes from the interior of the uterus in those cases, where, to save the life of the child and to lessen the mother's risk, it is found needful to induce the labour prematurely.

ALTITUDE AND POSITION OF CHILD IN UTERO.

The interesting questions regarding the position of the child in utero, as to when it is assumed and why, have, during these thirty years, been matters of earnest investigation, and still are subjects of obstetrical debate. As regards the When, at the beginning of the period there was hardly a dispute. The idea of the ancients that the fœtus maintained a sitting posture, with its pelvis at the os uteri, up till the end of the seventh month, when it made a sudden somersault which exactly reversed its position, was remembered and related only to be ridiculed. For the opinion of Smellie and Solayrès de Renhac had for a century prevailed, and it was regarded as a settled matter that the fœtus all along was in the same position in which it was found when labour supervened. But some twenty years ago a German obstetrician pointed out, that though the ancients had been in error as to the constancy and suddenness of the movement, yet that in many cases, in a manner more gradual, such change of posture might and did occur; and since then the careful multiplied investigations of his fellow-countrymen have proved beyond a question that not only in the earlier months, but even in the last weeks of pregnancy, changes do occur—footling or transverse changing into cranial presentations, and cranial presentations changing into these less favourable ones, in at least one-half of the women that have been examined. As to the Why, opinions are still greatly divided; and of the latest theory that has been started within the last few years to explain it—viz., that it is dependent on the changes in the fœtal circulation—one can only say it is more unsatisfactory than some of the theories it was intended to replace; and the old Aristotelian theory is gaining ground, that the peculiar attitude is mainly due to the effects of gravitation, the head becoming lowest because of its greater gravity.

PROPOSAL FOR COMMON TERMINOLOGY.

I trust the day is near at hand when a great impulse will be given to the better understanding of the different positions and presentations of the fœtus by the adoption throughout the various nations and schools of a common terminology. Whilst German statesmen are nearing the goal of national unification, it is cheering to see their men of science making proposals to agree upon some properly descriptive designations which should be used by all obstetric teachers and authorities. Let us cordially wish them all success; and let us hope that they may be induced to admit into their federation some representatives from other lands as well; for up till this hour obstetric writers are not agreed so far as to have settled what point of the fœtal skull all ought to understand when speaking of the *vertex*.

MECHANISM OF PARTURITION.

The mechanism of parturition, or the position which the child occupies in relation to the maternal parts and passages during the course of labour, has been studied likewise with increasing diligence. And here, again, views that were almost universally accepted thirty years ago have come to be questioned and subjected to a scrutiny which has caused them to be greatly modified. It were too long to enter now into any of the details which will have to occupy our attention by-and-by. Let me merely remark that the teaching of the illustrious Naegele, whose ideas have stamped their impress so deeply on the modern expositions of the subject that they are still reproduced almost in their entirety in some of our most recent text-books of midwifery, have been proved to be in several respects erroneous. With regard to the position which the head occupies at the very commencement of natural labour, *e.g.*, Naegele taught that it entered the pelvis obliquely to the plane of the pelvic brim, with the neck flexed slightly towards the left shoulder, so that the right side of the head lay at a lower level, and the right parietal bone presented and projected into the pelvic cavity further than the left. It was believed that this obliquity favoured and facilitated the passage of the head into and through the pelvis, and many an admiring sentence has been written regarding the beauty of the mechanism. Yet it has been shown of late years to be altogether a mistake; and any one may satisfy himself of the truthfulness of the description bequeathed to us by Smellie long ago, who represents the head as entering with the vertex foremost and in a plane parallel with that of the pelvic brim. For often and often we shall have to notice how the advance of our science seems to bring us to the very point where some of the great men of former days have stood. Only we stand there now with surer footing than they could do, having learnt how the position could be lost, and knowing better in what new direction our forward march could next be safely made.

MANAGEMENT OF LABOUR—ANÆSTHESIA.

If our understanding of the phenomena of labour has been and daily is becoming more correct and clear, so in the management of the parturient and puerperal female our treatment has become more simple and more satisfactory. For the vast improvements that have been effected in general hygiene have been brought to bear on our department also; and by the measures used either for the prevention of diseases or for their remedy, she is placed in a position far more favourable for her safe delivery. The manner of the general improvement here may be expressed in a sentence by saying that the treatment of lying-in women is coming to be guided less and less by artificial formulæ, and more in accordance with the laws of nature. But one mighty revolution in the treatment of the parturient female which our period has witnessed I cannot overlook—a revolution that will make the epoch memorable throughout all time. For during it a brilliant genius conceived the benign idea that woman should be spared her travail-pangs, and a brave spirit searched and found for her the means whereby her sorest of mortal agony could be safely, surely stilled—a boon for which suffering women will not cease to love and honour our profession until the day when He shall come, who comes to hush for ever all creation's groans.

LABORIOUS LABOUR.

When we pass from the subject of natural labour to study the cases where from various causes it becomes more dangerous and deadly, we observe that a growing attention has been directed, and with fruitful result, to the consideration of the three elements which are always present in a case of labour, viz., the body which has to be expelled, the canal or cavity through which it has to pass, and the powers employed in its expulsion.

With regard to the first of these—the fœtus or body to be passed—most interesting observations have been made of the highest practical importance, bearing on the mortality which arises from slight deviations in its size. Nothing could well bring before our view more clearly the exact adjustment between the dimensions of the body and the calibre of the canal it has to traverse, than the statistics that have been collected to demonstrate the difference of the fatality of labour, both to mother and offspring, according as the child is male or female. The difference in size between the heads of boys at birth and the heads of girls is very slight, amounting only to $\frac{3}{8}$ths of an inch in circumference—just such a difference as might be produced by enclosing the head in a single fold of a table napkin. Yet so nicely is the size of the fœtal head adapted to the capacity of the pelvic canal, that this slight difference is enough to make the birth of the male more than twice as fatal to the mother as the birth of the female infant; for of the children of 154 women who died of childbirth in the Dublin Hospital during Dr Collins's mastership, 105 were males and only 49 were females; and whilst the proportion of dead to living children among these boys was as 95 to 100, the relative mortality among the girls was only as 48 to 100. This increase in the difficulty of labour from the slight increase in size of the fœtal head is equally striking when we look at operative cases. Thus it is noted that of 200 forceps cases delivered in the Munich Maternity, 125 were boys and only 75 were girls. The children, that is to say, required the use of forceps for their delivery in a proportion of 166 males to 100 females, and this great divergence from the usual proportion of 106 to 100 is solely due to the mechanical hindrances produced by the greater size of the male infant's head. The increase of mortality likewise attendant upon everything that adds to the bulk of the child, or that leads it to present any other than its smallest diameter to the calibre of the canal through which it passes, has become more distinctly defined. Observations have been multiplied regarding the various forms of enlargement of the fœtus, as from tumours of its organs or fluid collections in its cavities, premature ossification of its cranial bones, and the diversified groups of monsters; while the injurious effects of the abnormal presentations of the child, when some part of the trunk or the extremities is found at the beginning of labour taking the place of the head, or when the head itself presents in some unusual position, or when an arm comes down along with it, or gets below the chin so as to prevent its flexion, or gets folded behind the occiput to become itself the obstructing cause—the influence of all these has been more clearly elucidated, and the existence of some of them for the first time recognised. And the result of all is that obstetricians understand better in *what* cases they must interfere, and *when* they may apply their aid with best effect; and it could hardly happen that such teaching could be found in any text-book written in 1870 as may be found in a text-book written in 1840 by a distinguished London practitioner and Professor of Obstetrics, who, in treating of those cases where the head presents with the face directed forwards, speaks of it as a dangerous condition, in which we may require to have recourse to turning, or to rectification, or to the use of the forceps or the lever, or even finally to the destruction of the fœtal head by means of craniotony: nearly the whole round of obstetrical operations being thus recommended under circumstances where unaided nature is competent almost invariably to terminate delivery with the utmost safety.

Again, labour may become abnormal in consequence of some deviation in the diameters of the canals through which the fœtus has to pass. Sometimes the diminution of the calibre results from morbid conditions of the soft parts, which the improved means of diagnosis enable practitioners now to recognise with a degree of certainty unknown in former days. The obstruction caused, *e.g.*, by a cystic tumour of the ovary will be at once recognised and remedied by the introduction into it of an exploring needle, whilst, if the obstructing body be solid, the same kind of exploration would reveal its nature and show the need of some operative interference to effect the delivery. Much more frequently, however, the contraction depends on some change in the configuration of the bony canal; and the study of these deformities of the pelvis during the last thirty years has resulted in the scientific arrangement of them in definite groups resembling the genera of a natural order of plants, in which account is taken not only of their ultimate form, but of the manner in which the modification has been brought about. Nor is it merely in a scientific point of view that the study of the natural history of the varieties of the pelvis has been productive of good results; but the gain in a practical point of view could hardly be overestimated. For the more correct our appreciation of the influence exerted by the different pelvic malformations on the position of the fœtus before, and still more during, the progress of labour, the more clear will be our understanding of the difficulties of any special case, and the better shall we know how far to trust to nature to complete it, and when to interfere according to the method most conducive to the safety of the mother and the child.

When we turn to the third element in parturition, we find that the powers engaged in the expulsion of the fœtus have likewise been the subject of fruitful investigation, both in their physiological and pathological relations. Their ordinary force has been approximatively measured, and the morbid conditions that bring about their failure have been more accurately noted; and whilst the resources of the materia medica have been laid under contribution for various remedies to increase the vigour of the uterine contractions, mechanics has sought to supplement their deficiency by applying a systematic pressure which can be regulated according to the requirements of any special case, so as to expedite the labour, and save the patient's strength.

OBSTETRIC OPERATIONS.

If we cannot point to any new kind of operative procedure introduced during these years for effecting the delivery of children where the mother's powers have failed, yet there is not one of all those at our command which has not undergone important modifications and immense improvements. Some instruments, such as the lever and the fillet, have fallen greatly into the background, and that mainly because of the great improvement effected in the construction of the instrument as an alternative for which these were principally employed, viz., the forceps. The construction of this instrument has been so much improved that it may be regarded as almost perfected; and though individual accoucheurs may still make slight modifications adapted to particular conditions, yet an instrument is already in the hands of the profession admirably adapted to fulfil all the indications required in a pair of forceps; and it is no small boon to the general practitioner to find that a single pair suffices to do the work both of the long and the short forceps of other days, and that his hand gets familiar with an instrument which can be used either to grasp the head above the brim, or to extract it from the outlet. What forceps *can* do, what they *should* do, and how and when they ought to be employed, are all questions that have been more carefully investigated and have received more definite replies.

The advances in connexion with the operation of turning are, if possible, more striking still, both as regards the manner in which the operation is effected and the kind of cases in which it may be advantageously resorted to. It is, for example, a mighty improvement in carrying out the operation to have learned to turn the child in the uterine cavity, whilst the membranes are still unbroken, by a combined external and internal manipulation; and it is a mighty advance in conservative obstetrics to have learned in certain cases of contracted brim to substitute this comparatively safe procedure for one bringing to the mother greater danger and to the child inevitable death.

In these cases, so trying always to the practitioner, in which it becomes necessary for the saving of the mother's life to diminish the head of the child by an operation which of necessity entails its death, he can now at least apply his art with a degree of ease to himself and safety to the woman, which in former days could not have been attained. It has been shown more definitely where the chief obstruction lies, viz., in the firm unyielding base of the skull; and whereas formerly efforts were expended in the breaking down and removal of the vault of the cranium, the practitioner now exerts his powers to more purpose in diminishing the base. There is a preparation in the Obstetrical Museum of this University of the remains of the skull of a child which was delivered by Dr James Hamilton, who occupied this chair during the first forty years of the century. The arch of the cranium had been broken down and removed bit by bit till only the base was left; but as it is precisely here that the difficulty lies, we do not wonder to hear Dr Hamilton relate how, after having opened the head of the infant one midnight, he proceeded between nine and ten o'clock next morning to the extraction, and was kept hard at work for upwards of four hours, till at last he "was literally obliged, from exhaustion, to be carried home in a sedan-chair at half-past two in the afternoon." The improvements that have been effected in the craniotomy instruments, and above all in the cephalotribe, give us the assurance that such a scene is not likely to be again enacted.

Without stopping to refer further to the means of inducing premature labour, and the various improved methods of dilating the passages where there is a call for their rapid dilatation, let me pass on to observe, that in regard to the very alarming complication of labour which arises from abnormal implantations of the placenta, great advance has recently been made both as to our views of its nature and its treatment. For the limits between the zones of safe and dangerous attachment of the placenta have been carefully defined, the source of the dangerous hæmorrhage has been more accurately determined, and thus the measures employed to counteract it can now be applied with a greater degree of precision and with a more satisfactory result. And I must not forget to note the happy addition that has been made to our means of effecting the reposition of the umbilical cord in cases of labour complicated by its prolapse—an addition which we owe to transatlantic ingenuity, and which consists simply in altering the position of the patient, so as to bring the fundus uteri to a lower level than the cervix, in order that the displaced cord may fall back into its cavity and lie there till the head be driven down into the pelvic space.

PUERPERAL DISEASES.

When we come to consider the diseases to which women are specially liable subsequent to parturition, we find that the contagiousness of puerperal fever has been established, and the hospitalism and other conditions which favour its development have been better ascertained. Many observations have been made regarding puerperal mania which help us to explain its causes and to anticipate its course. The pathology of phlegmasia dolens has been greatly cleared up. And, finally, many cases of sudden death occurring after labour have been shorn of their mystery since we have learned to see how the peculiar condition of a puerperal woman's blood should make her specially liable to coagulations and embolisms in the larger bloodvessels.

DISEASES OF WOMEN.

When we turn from Obstetrics to the consideration of the Diseases of Women, we find that in this other great department of our course the advance has been no less amazing. It is only during these thirty years, indeed, that Gynækology has begun to assert its due importance among the other departments of medicine, and that men of the highest standing in the profession have devoted themselves to it as their specialty, whilst its progress has been greatly furthered by the formation in various cities of influential societies, which have been established for the very purpose of discussing and developing Obstetrics and Gynækology, one of the first of which was instituted here in the year 1840.

UTERINE DIAGNOSIS.

It is, first of all, in regard to our means of investigating this special class of diseases that the most striking improvement has been made. If we look back to one of the few and rather meagre treatises of those days on the subject of uterine disease, we shall find the author relying for diagnosis, apart from the general symptoms, only on a tactile examination, internal and external, and a visual exploration by the speculum. That Auscultation should not sooner have been employed in the diagnosis of the various tumours of the pelvic organs is hardly to be wondered at, when we remember the little value that was attributed to its use in the diagnosis even of pregnancy by such men as Dr Hamilton. In the last edition of his "Practical Observations on various Subjects relating to Midwifery," given to the public in 1840, after having undergone careful revision by the author shortly before his death, he records it as his opinion, "that admitting that, by the application of the stethoscope to the surface of the abdomen of a pregnant woman, a peculiar sound (called placental souffle) is heard, and that another sound, supposed to be that of the fœtal heart, is also perceived, he is convinced that few cases can occur in actual practice where this test can be required, or can be applied" (p. 102). But as the instrument has come to be more and more employed in the investigation of abdominal enlargements, it has been found to afford a valuable positive mark of distinction between uterine and ovarian tumours, and even in those cases where its employment is attended with a negative result, the practitioner who has used it has cleared the ground the more completely for arriving at a perfect diagnosis.

In making a visual examination our means of exploration have received some notable improvements. The Endoscope, for example, has been introduced for explorations of the uterine cavity, and morbid growths that lay beyond the reach of the finger have been brought within the range of vision. And what is more important still, such modifications of the Speculum have been effected as have placed the whole vaginal cavity under our control to a degree which could not be attained by the old-fashioned instruments, whether for purposes of diagnosis or of treatment.

The objects which come within the range of our direct manual or tactile examination have also been much more clearly defined and differentiated, and the results of the Combined External and Internal exploration are laid down now in every work on female diseases with a fulness and precision of which we hardly find a hint in the writings of thirty years ago.

But the most important addition by far that has been made to our means of uterine diagnosis lies in the introduction of an instrument, the employment of which begins exactly at the point where the results of digital exploration become uncertain or fail us altogether. It was not altogether a novelty to pass a probe through the narrow neck of the uterus, for the practice is somewhat vaguely spoken of even in the old Hippocratic writings. But it was not till after 1840, when the profession was wakening up to the immense variety and importance of uterine disorders, that men began fairly to realize the need of systematically exploring the cavity of the uterus, and sought to supplement the data obtained from the touch by the use of a metallic finger or probe which could be passed into the interior. It is interesting to note that the want was felt alike in Germany, in France, and Britain; and almost simultaneously a leading gynækologist of each of these nations invented an instrument adapted for the purpose, and began to recommend its general employment. But Britain was first in the race, and the Uterine Sound which was first used here is still the one which, with some trifling modifications, is most widely adapted. By means of it we can make out the degree of patency or contraction of the cervical canal; we can accurately measure the length of the uterine cavity, and determine in cases of disease its degree of enlargement or diminution; we can ascertain its precise position and direction, whether it occupy its ordinary place or have undergone some kind of dislocation; we can form some idea of the condition of the living membrane of the organ; we can discover its degree of fixity or mobility, and its connexion or its non-connexion with uterine or ovarian tumours,—and these are all points regarding which, without the sound, we must have remained almost or altogether in the dark.

The great impulse given to gynækological pursuits by the introduction of the sound, led ere long to another invaluable addition to our means of diagnosis. For it became clear that if some means could be discovered of dilating the canal of the cervix to the degree in which it is dilated in some cases of abortion, when it is sufficiently patent to admit the finger, some of the morbid conditions of the cavity would become more distinctly recognisable, and at the same time become more accessible to treatment. Such a means was found in the Sponge-tent, which, being introduced in a dried and compressed state into the narrow cavity, absorbs moisture, swells and distends the cervix uteri to such a degree that tumours high up within the uterus can now be reached and removed, such as formerly used often to undermine a patient's health, and sometimes bring about her death, without the possibility of our affording any marked relief or applying any remedy.

Another valuable addition to our means of gynækological investigation consists in the introduction of the Exploring Needle. Often and often has this useful instrument enabled the practitioner to decide whether a given tumour was solid or fluid, where the most erudite touch must have hesitated to pronounce upon it; and where the swelling was felt clearly enough to be cystic, the insertion of the little tube has revealed to him the nature of its contents by bringing some of the fluid before his eye, when he could call in the aid of chemistry or the microscope to correct or confirm his diagnosis.

For I ought to add that Chemical analysis, by showing us the difference between various fluids, enables us to distinguish an inflammatory effusion from the secretion, *e.g.*, in an ovarian cyst; whilst for the ascertaining of the nature of many morbid products, both fluid and solid, the Microscope alone affords the necessary data.

Nor can we here forget the great assistance which we often find in the use of Anæsthetics in our investigations into cases of uterine disorder. In those instances of supersensibility where the slightest touch produces exquisite distress, unless we first put the patient to sleep all examination would be utterly impossible, and all attempt at cure would be but a random effort. At other times we require to have the patient anæsthetized and the muscles all relaxed, in order to obtain the full result of our palpation; and gynækologists are now familiar with a curious class of cases, where the patient believes herself to be the subject of a tumour or other abdominal enlargement, and where the use of chloroform reveals at once the nature of the case, the swelling gradually subsiding as the patient falls asleep, and the tumour proved to have been nothing but a phantom of her brain.

THE TREATMENT OF UTERINE DISEASES.

It is an unspeakable comfort to have acquired the means of making a diagnosis oftentimes so certain that we can lift from a woman's heart a heavy load of dark foreboding fears, and send her away rejoicing that it is no longer the sentence of death she carries within her, but the cheering hope of a new young life. Yet it is not in the way of adding to our diagnostic methods only that progress has been made,—our means of *treatment* have been equally improved.

Whilst some of the Flexions of the uterus, *e.g.*, can only be satisfactorily made out by the use of the sound, the very means that enable us to recognise, enable us also to rectify them; and vast ingenuity has been expended, and often with the happiest results, in devising various appliances for maintaining the organ in its proper place, or mitigating the evils of its dislocation. Side by side with the progress that has been made in our acquaintance with the mechanical means best adapted for the remedy or relief of these disorders, great advance has been also made in our appreciation of the efficacy of antiphlogistic and other measures in appropriate cases. These two lines of advance have been occupied, sometimes too exclusively, by two different groups ot gynækologists, who have seemed occasionally to assume antagonistic attitudes. But in reality the one has never been able to dispense with the assistance of the other. They of the so-called mechanical school have ever and anon found themselves in presence of special cases and vital conditions where mechanical measures could not be tolerated; and their rivals, on the other hand, have not been so unwise as to discard all aid of properly-adjusted instruments. Otherwise, it were as if, on the one hand, the Crown Prince of Prussia had led his army into a hostile country, confiding only in the long range and the certain aim of the needle-gun, and careless of the condition of his commissariat; or as if, on the other, his cousin were to have led his battalions to the field well fed, well found in everything but rifles. So he who would attempt to treat female disorders regardless of the lessons to be learned in one or other of these schools, must go to his work either with a palsied arm or a powerless weapon; for the progress of each has led to common gain, the good result of which is seen in the restored health and usefulness of women who had else been left as helpless, hopeless invalids.

With regard to that very frequent form of uterine disease, where morbid growths of a non-malignant kind are developed in the walls of the organ, we find their pathological anatomy now made out; and whilst their diagnosis can be more accurately determined, their general course and tendency is better understood, so that in most instances we can speak with much assurance as to the prognosis of the case. According as these Fibroid Tumours lie immediately beneath the peritoneal covering, or are embedded in the wall of the uterus, or project into the interior of its cavity, we know better how to apply our means of cure—when to leave them to the beneficial influence of various mineral springs, or the salts with which these are impregnated; or to adopt various measures to relieve the symptoms they excite; or, finally, to have recourse to various operative procedures which tax all our skill and patience, but which often have the happy issue of saving our patient's life and restoring her to health.

I have spoken of the normal anatomy and physiology of the Ovary. Its morbid anatomy has been the subject of research no less interesting and instructive; whilst our powers of distinguishing ovarian tumours have been greatly heightened. But it is with regard to the treatment of it that the most important advance has been achieved. The extirpation of these tumours was not a novel operation. It had already been performed in several cases in the beginning of the century by Dr Ephraim M'Dowell of Kentucky; but in the hands of the only European surgeon who had attempted it, the operation had not been attended with encouraging results; so that Dr Hamilton says, "It is to be presumed that no British surgeon in future will venture upon such an experiment." The leading surgeons and gynækologists of the day were of the same opinion; yet some who believed the operation to be not only justifiable, but in some instances commendable, began to express their ideas and to carry them into practice. And inch by inch the field has been fought, till now the opposition to Ovariotomy has not only died away, but it is reckoned among the most satisfactory of surgical operations, and the many women who have been rescued by it from disease and death are counted among the proudest trophies of modern surgery.

Vesico-vaginal Fistula, though not so fatal, was looked upon with even a greater degree of hopelessness. Dismal, depressing cases for the heart of the surgeon they were,—those women in whom an opening had formed between the bladder and vagina, so that the constant escape of urine made them miserable in themselves, and objects of pity and almost of loathing to all around them,—for closure of the fistula could hardly ever be effected, and had almost ceased to be attempted. It was a happy day for us, as well as for these poor patients, when news came from across the Atlantic that one of the great gynækologists of America had found the means of closing up these fistulæ by using silver sutures. Many a woman who had been sent away heavy-hearted by her almost as sorrowful doctor to eke out a dreary existence in perpetual distress, was now gladly recalled, to be subjected to an operation which restored her to the enjoyment of health and comfort; for the introduction of the use of metallic sutures has enabled us to attempt the cure of these troublesome cases with almost absolute certainty; and not only these, but all the lacerations and perforations of the pelvic parts and passages have, in a far greater degree than formerly, become subject to our control.

I might speak of yet other maladies peculiar to the female which have first begun to attract special attention in recent years, or of which the pathological nature has only begun to be understood, or I might treat of various diseases where we may not be able to interfere with such satisfactory results as in the instances I have referred to, but where we can moderate the rapidity of its course and mitigate the severity of its consequences—in which we have got large additions to our palliative measures, though we have not yet discovered a means of perfect cure. But I must hasten to a close.

IN MEMORIAM.

I have not named any of the distinguished men to whose talents and industry we owe all these achievements. I have not attempted the invidious task of sitting on a judgment-seat to portion out to each his meed of praise. I have not pointed out to you the lights in our obstetric firmament, and sought to settle which are stars of first and which of lesser magnitude, but rather to the light which they have shed to guide us in our path. For I have been anxious that you might begin at once to see with what an interest our subject is invested, and what a wide and worthy field it will afford for the exercise of all your best intelligence and all your earnest industry.

Yet all the while one name has been before your minds. It cannot ever be that the Midwifery class can meet in this University without remembering the name of Sir James Young Simpson. It is written too broadly for that on the page which the student of our science has to read; it is engraven too deeply on the weapons which the practitioner of our art must wield. It shines with the light of a star of the greatest magnitude. We would not coldly estimate its brightness; we could not calmly measure its proportions. We stand too near him yet. We feel too keenly still our overwhelming sense of a great, unspeakable, irreparable loss. These college scenes look unfamiliar now that he, who for a generation was so great, so bright a part of them, comes back to them no more. My heart would fail me if I tried to speak of how we miss him in the circle of his friends. He is missed by the throngs of patients that were gladdened by his kindness, and got healing through his skill. He is missed by fellow-practitioners, who could always count on his ready aid, and who felt that, when their own resources failed, they might yet rely on his. Philanthrophists of every kind miss one of the most willing-hearted, able-handed of their number. And, Gentlemen, you miss him too. When you began your medical curriculum, you not unnaturally expected that when your time had come to study Midwifery you would have had the privilege of sitting at the feet of its great master. You hoped to have come under the invigorating influence of his mighty intellect, to have listened to the eloquence and wisdom of his oral teaching, to have learned at his own hands the most successful means of practice, and to have your enthusiasm kindled by that inspiring zeal of his which had stirred a like professional enthusiasm in many another breast. That cannot be, now that he has been taken from us. But in his writings he has left us a mine of rich experience, and a treasury of pregnant thoughts, whilst in the various instruments which he invented he has bequeathed to us the permanent results of his great ingenuity. Of these let us make faithful use. Let us read the lessons of his life, and profit by his own example. The rare genius may not be ours; in any age there are not many such. But in the unwearied industry which made him still toil on when he had earned good right to rest; in the devotion to his profession which kept him ever aiding and delighting in its progress, seeking to enlarge the limits of its science and to enrich the resources of its art; in the kindly human interest in the objects of his care, which made his patients look on their physician as a friend; in the genial charm of sympathy which gained him such a rich return of love that the tidings of his death carried sorrow to hearts in every quarter of the globe such as when a brother dies; in the real greatness of the man, which kept him always greatly real, genuine, and unassuming; in the childlike faith, which in his later years brought to his heart the peace that passeth understanding, and which led him at last through the valley of the shadow of death, fearing no evil, but speaking with radiant eye of the light that he descried beyond the darkness,—in these we all may follow him. In these may grace be given each of us to follow him, that our own individual path may not be like that of the darkened star whose place in the firmament is only shown by its distracting from its steadfast course some neighbour star, but rather may be as the shining light that shineth more and more unto the perfect day.

ARTICLE II. — *On Resection of the Wrist-Joint.* By JAMES D. GILLESPIE, M.D.; President R.C.S.E.; Senior Ordinary Surgeon to the Royal Infirmary, etc.

EXCISION of the wrist-joint is an operation which has not generally acquired the confidence of the profession till within very recent times. Even so late as the year 1862, in "Holmes's System of Surgery," a work which professes to give elaborate and exhaustive treatises on all that is important in surgery, we find the following passage:—

"No operation appears advisable when the whole carpus is involved in chronic disease. The patient will probably recover from the disease in course of time, unless the strumous cachexia is too far advanced; while, if it is so, he will not recover from the operation any more than the disease. Nor does it seem in the least degree probable that he will have better motion after the operation than after the natural cure. Consequently the formal excision of the whole wrist for extensive disease (which is almost always strumous) is an operation which is regarded with little confidence even by those who are most zealous advocates for excision of other joints."[1]

Such was the ultimatum in the year 1862, and it is, therefore, not surprising that the operation was generally regarded with disfavour. The weak and assailable point in that opinion is this, that where the disease is strumous it will get well in course of time, unless the strumous cachexia is too far advanced; and if it be too far advanced, the patient will die whether the operation is performed or not. Such an argument would preclude any important operation being undertaken on a strumous subject. It is notorious that most of the chronic diseases of the joints are of strumous type; so, were this dictum to be acted upon, operative surgical interference would rarely be carried out.

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[1] Holmes's System of Surgery, 1862, vol. iii. p. 812.

Strumous disease of the wrist-joint may, and doubtless does, sometimes heal spontaneously, but it is no less true that, if allowed to have its own way, it may produce hectic fever and death. It is in those cases where the life of the patient is imminently threatened by intractable disease that the surgeon must at last interfere, and either amputate the forearm or excise the wrist-joint. It must be admitted that the conservative operations by the plans hitherto in vogue have not been generally satisfactory; but, in the *Lancet* of 1865, Professor Lister introduced a method which promised better results, and which has achieved fresh triumphs for conservative surgery. It consisted of two long incisions, one on either side, on the dorsal aspect of the joint, carefully separating the carpal bones from their attachments, and removing them either *en masse* or in detail, the flexor and extensor tendons of the fingers being untouched. This operation involved much time and labour, and its chief objection, as it appears to me, is, that a good deal of the cutting and scraping must be done out of sight, still more so if the one incision on the inner side, as latterly recommended by Sir Wm. Fergusson, be chosen. The flexor tendons of the fingers are of infinitely the most importance, and deserve the most delicate treatment, and they are likely to be considerably disturbed by either of these modes of operation. As regards the one incision only on the inner side, a glance at the wrist will show how difficult it must be to get at and remove the trapezium without risking injury to important parts.[1]

After seeing Lister's operation performed above six times, I came to the conclusion that one incision in the mesial line on the dorsal aspect of the wrist would probably prove satisfactory.

My reasons for choosing such a plan of procedure were the following:—

1. I would see plainly everything requiring to be cut, taken away, or avoided.
2. The palmar portion of the hand would be undisturbed.

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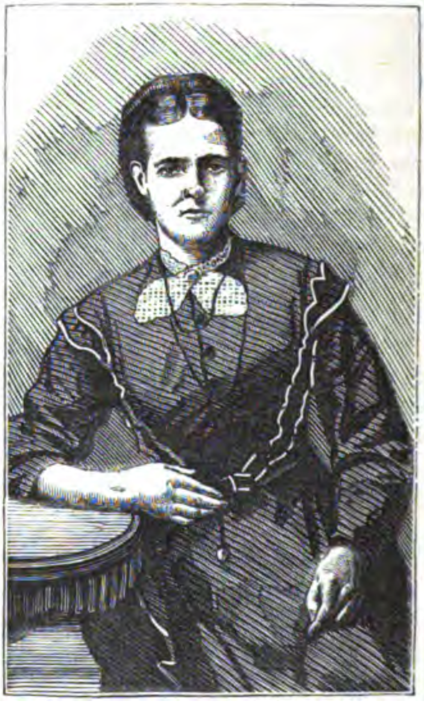
[1] In the September number of the *Edinburgh Medical Journal* for this year, there is a report of a case of excision of the wrist-joint by Dr P. H. Watson, in which only one incision was practised, its direction being along the radial border of the extensor indicis. The result, however, is not given. The same objection applies to it as to the one incision on the inner side, but not to the same extent, as the line of the wound brings the surgeon nearer the most important objects to avoid; but the attempt at dissection of the sheaths of the flexor tendons from their attachments to the bones, must cause much more disturbance of the relations of the parts, than by picking out the bones in succession from the dorsal aspect.

3. The shape of the wrist could be more readily preserved.

Two opportunities have lately occurred for my putting in practice the plan indicated.

I shall now briefly detail the two cases; and as I do not consider such cases complete without ocular proof being submitted of the efficiency of the hand thereafter, I have had woodcuts designed from photographs taken about ten weeks after the operations, together with a copy of E. L.'s signature on 16th November.

Case 1.—E. L., a young unmarried woman, æt. 23, has suffered from swelling of the right wrist for the last five years. She was first seen by me in 1867 at Coldstream, when she was under the care of Dr Turnbull. At that time the symptoms indicated only ganglion of the wrist, the swelling being chiefly in the sheaths of the flexor tendons, and not extending into the palm, there being little pain, but stiffness, which prevented any use being made of the hand.



yours well wisher
Elizabeth Little

[Note.—Owing to the difficulty of fine shading in a woodcut, the hand looks plumper than the other, but it actually is the same.]

I made a free incision into the swelling anteriorly, and evacuated a quantity of serous fluid, and numerous rice-like bodies, which are so symptomatic of bursal wrist disease.

No improvement in the state of matters took place after this; for, though the wound healed, swelling of the wrist continued and increased in magnitude, extending into the palm.

In the summer of 1869 she was admitted by me into the Royal Infirmary, and though the symptoms now pointed to disease of the wrist-joint itself, still, being cognisant of the original affection, I thought it right to make an incision several inches long through the annular ligament into the palm, thus laying the swelling throughout its whole extent freely open. A small quantity of purulent fluid was evacuated. The wound healed favourably, but the usefulness of the hand was not improved, it being stiff, immovable, and powerless. The patient then returned home.

Soon afterwards the wrist again became swollen, and large sinuses discharging pus opened on the palmar aspect.

She was readmitted to the Infirmary on the 23d July 1870. Her condition was infinitely worse, the wrist being much swollen, very painful, and discharging pus from sinuses on the palmar surface, which led to diseased bone. Her appearance was pale and anæmic, and there were marked symptoms of hectic.

Excision of the wrist-joint was determined on after a course of tonic regimen.

2d Aug.—The wrist was excised to-day by means of a single incision, about three inches long, in the mesial line, on the dorsal aspect of the joint. The skin was first dissected a little to each side, and the joint opened on the outer side of the extensor tendons of the fingers. These and the extensors of the thumb were held out of the way by hooks, and the extremities of the ulna and radius exposed and removed in rotation, a large portion of the end of the radius requiring to be taken away. The carpal bones were next attacked and dug out, partly by means of the scalpel and partly by the scraper, the palmar relations being very slightly disturbed. About one-half of the metacarpal bone of the thumb, and more than the articular surface of the second metacarpal bone, required removal. The bones were very soft and spongy, the synovial apparatus of the smaller bones being comparatively little diseased. Only one small artery required ligature. A plug of dry lint was placed in the cavity, and the edges were brought together by metallic sutures, left uncut, so that they could be opened up and readjusted. The arm was placed on an ordinary Gooch's splint, padded and covered with gutta percha sheet, with a large hole cut in it opposite to the palmar sinuses.

Next day the plug was removed, the cavity syringed with aqueous solution of carbolic acid (1 in 40), the wound being dressed antiseptically by means of carbolic acid and shellac plaster.

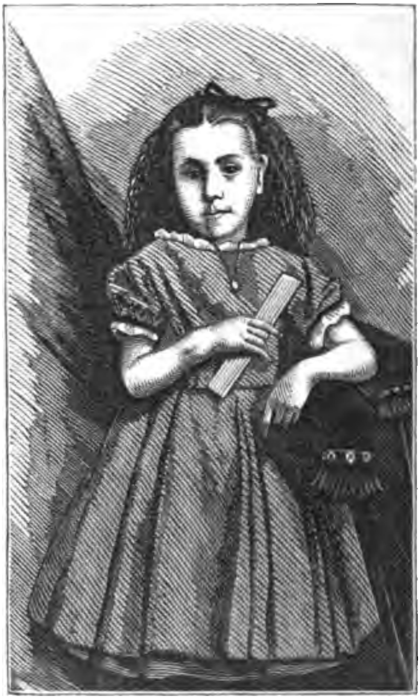
During the next sixteen days the dressings were daily applied, after which, the discharge being trifling and the palmar sinuses healed, they were changed every third day.

On 8*th Sept.*, the wound being all but healed, and the fingers and thumb having acquired much more power of movement, the splints were removed and a leather gauntlet substituted, which embraced the root of the thumb, and extended to the knuckles.

On 1*st October*, two months after the operation, the patient wrote a letter home, and began to knit, the gauntlet being found of much value in giving support to the wrist.

On 17*th October* the photograph was taken, from which the accompanying woodcut has been made; and on 25*th October* the patient returned home in excellent health.

Case 2.—M. B., a little girl aged six years, was admitted into the Royal Infirmary on 4th July 1870.



Her mother states that three years ago her right wrist-joint was hurt, and became to a certain degree stiff.

Within the last twelve months the joint became swollen and extremely painful, and soon incisions were required on both aspects to evacuate pus. The swelling did not subside, and sinuses remained open, from which a large quantity of pus daily escaped.

The wrist becoming still more painful, and the child's health evidently giving way, excision of the joint was performed on the 11th of August 1870.

The same plan of operation was adopted as in the case of E. L. The disease was found to consist chiefly of gelatinous degeneration of the synovial membrane, which was much thickened and spongy, the bones being comparatively healthy; so only the articular surfaces of the radius and ulna were removed, and no portion of the metacarpal bones. Owing to the state of the synovial membrane the wound was sponged with tincture of iodine, and next day dressed antiseptically. There was much oozing from the cavity, from the inflamed synovial membrane, but no ligatures were required.

On 28th August the antiseptic treatment was discontinued, as the wrist had become consolidated, and the wound healed, with the exception of a very small superficial granulating surface in the line of the cicatrix.

The patient was allowed to be up and to play about the ward, the parts being supported by a leather gauntlet lacing up the back of the wrist.

The power of movement of the fingers and thumb quickly returned, and with still more freedom than in E. L.'s case.

Though two successful cases can scarcely be considered sufficient to establish the claims of a suggested change in the performance of any operation, I think the results in these cases have been so satisfactory as to warrant my making them public, in the hope that others, on further trial, may find the plan proposed for resection of the wrist worthy of adoption.

ARTICLE III.—*On Dr Vivodtsef's Method of Embalming the Dead.*

By GEORGE L. CARRICK, M.D., L.R.C.S.E. and L.R.C.P.E., Physician to the British Embassy at St Petersburg.

EMBALMING the dead, although largely resorted to as a sanitary measure by the ancient Egyptians, is so seldom practised in the present day, that the majority of medical men, including even not a few anatomists, have never witnessed the process, nor observed its results. And this is not to be wondered at, when the difficulty and tediousness of embalming, and, worst of all, its subsequent failure in many instances, are taken into account. The operation, moreover, as it could be performed by none but experienced practical anatomists at great outlay of labour, was a very expensive one, so that those only were able to command it who possessed sufficient wealth to remunerate the operator for his time, skill, and trouble. It also not unfrequently happened that the process of embalming, even in the hands of the most skilful, was followed by rapid decomposition of part, or parts, of the body. And, lastly, the opening of the abdominal and thoracic cavities, and the removal of the viscera contained therein, rendered the process tedious to the operator and distasteful to a prejudiced public.

Indeed, owing to the difficulties above enumerated—and they were met with, more or less, in all modes of embalming hitherto proposed and practised—the operation was called for only in very exceptional cases. Besides, there has always been a sort of awe attached to, and a certain mystery connected with, the process. Not that anatomists kept their methods of operating a secret, but somehow or other few medical men knew in what way, or by what means, embalming was accomplished. The principal objections, however, to the operation were the great amount of time and skill required for its performance, its consequent expensiveness, and its occasional failure. An easy, quick, and cheap method of embalming has therefore been long sought for, but until Dr Vivodtsef's invention the chief difficulties remained unsurmounted. Dr Vivodtsef's process is so simple, short, and easy of accomplishment, and requires so little skill, that any person possessed of the slightest knowledge of practical anatomy can execute it as easily as the most experienced dissector can. Now an operation which can be performed by unskilled hands, and quickly, need never, of course, be expensive; and thus one of the chief objections to it is overcome. Further, if correctly carried out, it is not followed by decay of any part of the body embalmed.

Before, however, passing on to Dr Vivodtsef's method of embalming, some of the former methods may, by way of comparison, be referred to.

In former times a great many modes of embalming were resorted to. Generally the thoracic and abdominal viscera were removed, and the arteries injected, by means of syringes, with some antiseptic fluid, which fluid was also poured into the cavities of the body. The solutions usually employed consisted of various preparations of zinc, lead, mercury, and arsenic, all of which, although possessing the power of preventing putrefaction, are not convenient for purposes of embalming, for the following reasons:—*1st*, They cause powerful contraction of the tissues, and thus lessen the calibre of the larger vessels to such an extent as to prevent the antiseptic fluid passing into the smaller arteries and into the capillaries, so that the parts supplied by these bloodvessels undergo rapid decay. *2d*, They corrode and spoil the instruments used for the operation.

Besides the above-named substances, however, many others have been used, such as turpentine, acetic and phosphoric acids, and various compounds of alum, etc. etc.; but they all tend very little to retard, far less prevent, decomposition. The mode of introducing these solutions into the system was by means of syringes of various shapes and sizes, against all of which it may be said—*1st*, That they make the operation very tedious; *2d*, That their use demands

Fig. 3.

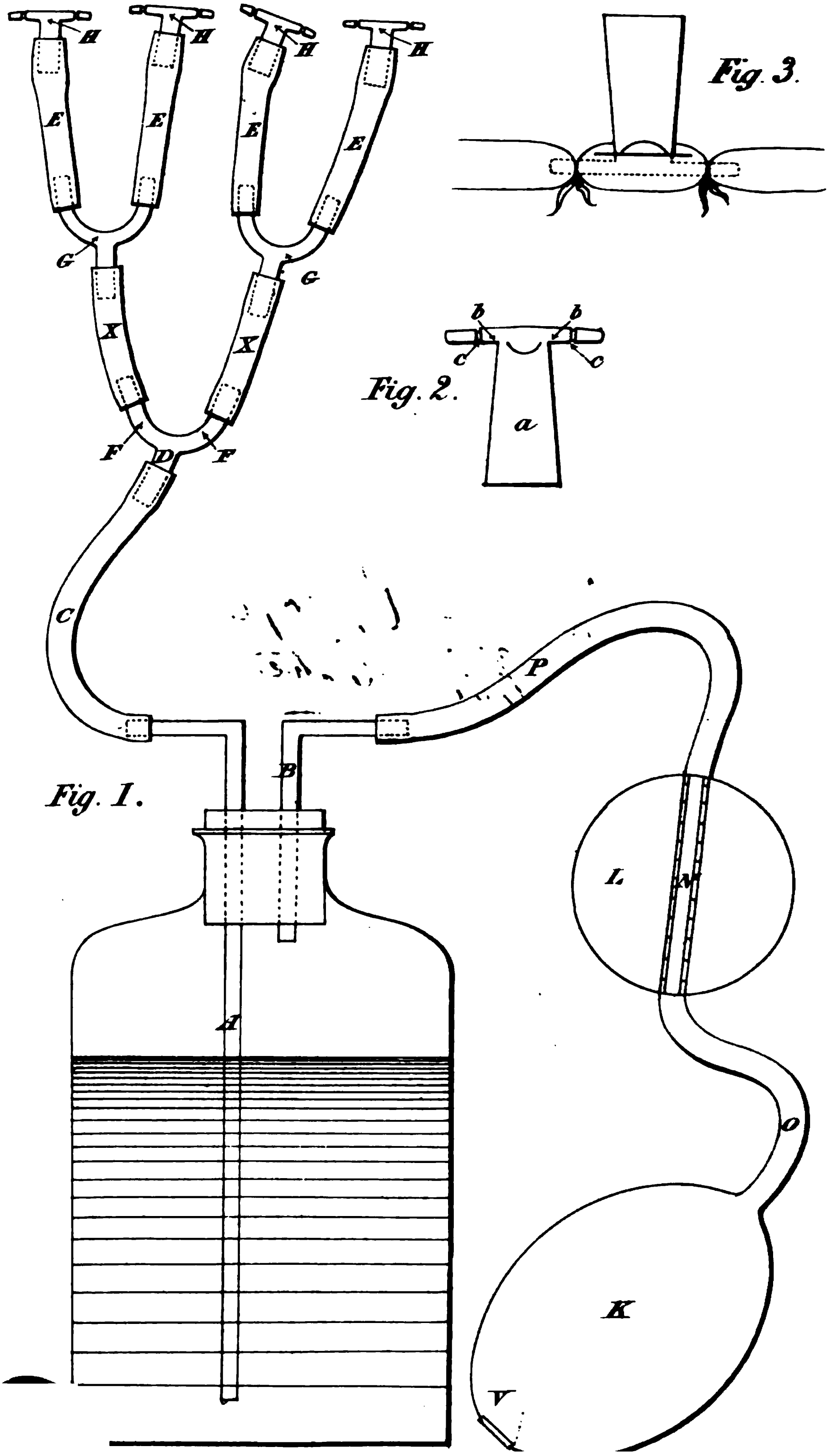


Fig. 2.

Fig. 1.

great skill, considerable strength, and unbounded patience on the part of the operator; *3d*, Their action is not steady and continued, nor is it as powerful as that of an apparatus which pumps the antiseptic solution into the arteries in a regular and rapid stream.

Thus in all former modes of embalming there were faults in the fluid injected, as well as in the mode of injecting it. Dr Vivodtsef's method differs from all others—*1st*, In the kind of material used; *2d*, In the manner of injecting it; *3d*, In leaving the brain and thoracic and abdominal cavities intact.

We shall now consider *Dr Vivodtsef's Method of Embalming*, which consists in injecting into the arteries, by means of Dr Richardson's apparatus for local anæsthesia, a mixture of carbolic acid and alcohol.[1] For the successful performance of the operation, the following materials and armaments are needed:—*1st*, Alcohol of about 90°, holding in solution one-fifth its weight of carbolic acid. The quantity of mixed fluid must equal about one-half the weight of the body. *2d*, A glass bottle (Fig. 1) capable of holding from five to fifteen pints of the above-named solution. This bottle is provided with an indiarubber stopper, which has two glass tubes, a long one and a short one, running vertically through it. The long tube (A) passes down to the bottom of the bottle, while the other and short one (B) only reaches the lower surface of the stopper. The upper ends of both tubes, after rising an inch out of the stopper, are bent at right angles to it, and then run horizontally in opposite directions.

The upper extremity of the long glass tube is connected by means of about two feet of indiarubber tubing (C), with a fork-shaped copper tube (D), on the two branches (F and F) of which two indiarubber tubes (X and X), several inches in length, are slipped. Each of these tubes again has a fork-shaped metallic tube (G and G) inserted into it, and to the free ends of both metallic tubes, four indiarubber tubes (E, E, E, E), from six inches and upwards in length, are attached. These four tubes terminate in the small metallic canulæ, which are inserted into the arteries, and through them the fluid passes into the body. The canulæ (H, H, H, H) are small brass tubes, T-shaped (Fig. 2), and varying in size according to the size of the body, or rather of the artery, we desire to inject. In the apparatus employed for embalming adults, the shaft (*a*) of the tube is about four times the thickness of its branches (*b*, *b*), which vary in breadth from the sixteenth to the tenth of an inch. These branches are inserted into the artery, which is incised longitudinally to admit them. Each branch has a small groove (*c*, *c*) running round it, and into this groove the string used for tying the artery to the canula slips, and thus keeps the injected fluid from regurgitating.

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[1] Dr Vivodtsef has lately used a mixture of water and glycerine in equal proportions, holding about one-tenth part of carbolic acid in solution. Although this is a much cheaper method, I have reasons to doubt whether it will prove as successful as the alcoholic solution. Glycerine and water can never, I think, pass through the minute capillaries as thoroughly as alcohol can. Dr Vivodtsef has shown me several apparently successful injections with the glycerine solution; but as two months only have elapsed since he commenced that kind of embalming, it is impossible as yet to pronounce any decided opinion regarding it.

We now pass to the consideration of that part of the instrument that is attached to the short glass tube (B), through which air is pumped into the bottle with a pressure sufficient to send the fluid through the long glass tube into the arteries.

The atmospheric pressure is accomplished by the same apparatus (only made much larger) which Dr Richardson employs for producing local anæsthesia, and consists,—1*st*, Of a thick-walled very elastic indiarubber bag (K), ellipsoid in shape, about eight inches long and three wide. At its free extremity it is provided with a valve (V) which opens from without inwards. Its other end connects it, by means of elastic tubing (O), with, 2*d*, An indiarubber ball (L), through the middle of which passes, and to which is attached, a copper tube (N) with numerous holes at its sides. The other extremity of the indiarubber ball is connected, by means of elastic tubing (P), with the short glass tube of the bottle. This is all the apparatus required for embalming.

The process is the following:—Firstly, the urine is drawn off with a catheter, and the rectum and descending colon washed out by means of warm water. The common carotid, brachial, and femoral arteries on both sides are then cut down upon, and their accompanying veins—the jugular, brachial, and femoral—exposed to view. A longitudinal slit, of about half an inch in length, is then made into the anterior surface of both common carotid and brachial arteries, and both jugular and brachial veins. The small T-shaped metallic canulæ are then introduced into the open mouths of the four arteries. This is accomplished by pushing into the artery, through the incision made in it, first one branch of the canula and then the other.

Having introduced both branches in such a manner that the upper part of the shaft (now turned downwards) occupies the middle of the slit, two ligatures are passed round the artery—one ligature about an eighth of an inch from one end of the opening, the other the same distance from the opposite end of the opening. Each ligature is then tightened and tied, and embraces that part of the artery which covers the small groove passing round the branch of the canula (Fig. 3). The ligatures are placed to keep the canula in its position, and to prevent the fluid regurgitating through the slit in the artery. All the four arteries are secured in the same manner, but the openings in the veins are as yet left untouched.

The glass bottle, filled with the antiseptic liquid, is next placed on the table, while the ellipsoid bag and indiarubber ball are laid on the floor. The bottle is then connected with the four canulæ (now inserted into the arteries) by means of four elastic tubes (E, E, E, E). The connexion between the injecting apparatus and canulæ being now established, the operator places his foot on the elastic ellipsoid bag (K), squeezes the air out of it, and allows it to refill by the removal of his foot. Every time he presses on the ellipsoid bag he fills the indiarubber ball (L), whence the compressed air passes along the indiarubber tube (P), and then through the short glass tube (B) into the bottle. The compressed air presses upon the contents of the bottle, and sends the fluid, first through the long glass tube (A), then through the fork-shaped metallic tubes, and through the indiarubber tubes, and, lastly, through the canulæ into the arteries. The fluid travels along the arteries in two directions, upwards and downwards. A continuous current is thus kept up, and a gradual diminution in the contents of the bottle is soon observed. When the body begins to swell and the face to get puffy, particularly under the eyelids, the canulæ should be withdrawn, and the arteries tied at both ends of each opening. So far, however, only the carotid and brachial arteries have been injected. The operator must now proceed with the two femoral arteries, and as merely two canulæ are here needed, the four elastic tubes (E), as well as the two forked metallic tubes (G), are removed from the apparatus, and the two canulæ are inserted into the two elastic tubes (X, X). The process of injection is again commenced, and continued until clots of blood at first, then blood mixed with the antiseptic fluid, and, lastly, the fluid alone, escape from the opened veins. The veins are now ligatured, and the pumping of the solution into the body is continued, until an opaque, yellow-brown fluid, a mixture of blood and mucus, begins to flow from the nostrils; while at the same time the operator feels the ellipsoid bag resisting the pressure of his foot. This is a sign that the viscera and bloodvessels of the body are already full, and can contain very little more liquid. The injection is continued, however, for a minute or two longer, until a clear fluid commences to escape from the nostrils, and the ellipsoid bag no more yields to pretty firm pressure.

The operation is now brought to a close. The canulæ are withdrawn, the femoral arteries ligatured in the same way that the carotids and brachials were, and all the wounds are carefully and closely sewn up. It should be remembered that in embalming the body of a child it is sufficient to inject the carotid and femoral arteries only; in an infant the femoral alone.

Changes which the Body undergoes after Embalming.—Towards the termination of the process of embalming, the post-mortem rigidity and cadaveric lividity gradually disappear, the abdomen swells considerably, the chest assumes a rounder form, the face fills up, and the eyelids become puffy, as in acute albuminuria. The skin, particularly of the face, ears, and neck, loses the waxy and semi-transparent appearance it so often presents after death, and becomes whiter and more opaque, feeling like parchment to the touch.

In a few days, however, the puffiness of the face and eyelids disappears, and the features assume their natural proportions. The parchment-like condition of the skin is permanent. The body continues in this state, without undergoing any further alteration, for three, four, or six months; after that it begins to shrivel somewhat, the features become sharper and more pinched, the cheeks fall in, the eyeballs sink deeper into their sockets, the abdomen and chest decrease in circumference, and the extremities become palpably more bony. The skin still retains its white colour, however. After six months—although sometimes not until after eight, or ten, or even twelve—it begins to get dusky, and then its tint gradually deepens until it assumes a decidedly brown colour. The soft parts now shrink more and more, and the whole body becomes thinner and drier; in other words, it begins to mummify. In this mummified condition (in which, however, the muscles are soft and flexible) it may last for almost any number of years.

The Time required for the Process of Embalming will of course depend much upon the skill and energy of the operator, the assistance he has at hand, and the condition of the subject he works upon. Thus, if the materials be all ready; if two bottles, each connected with a separate injecting apparatus, be employed, so that the injection of femorals, carotids, and brachials can be carried on at the same time; if the body be lean; and if the operator be skilful in cutting down upon the arteries; and last, not least, if he have a smart assistant—the whole operation may be completed within an hour. Usually, however, from two to three hours are needed, sometimes even five or six, from the commencement to the end of the operation. Infants are more quickly embalmed than children, children than adults.

Points to be attended to in Embalming.—1. The fewer and the smaller the incisions made the better, as every cut in the skin allows of some portion of the injected fluid to escape through the severed capillaries during and after injection. 2. It is necessary to keep several veins open until all the blood escapes from the body, and then to tie them with a double ligature as soon as the antiseptic fluid begins to flow from their cut surfaces. 3. The fresher the body the more successful will the operation prove. When signs of decomposition have made their appearance—as, for instance, green patches on the abdomen—success is doubtful. 4. The injection should be stopped then only, when the ellipsoid bag strongly resists pressure. 5. It is well, although not absolutely necessary, to inject some of the antiseptic fluid into the rectum, and colon, and bladder.

General Remarks.—1. Fluid escapes from the nostrils for several hours, and sometimes even days, after embalming. 2. The antiseptic fluid runs pretty largely from the incisions made in the skin, particularly if the wound is not closely and well stitched. 3. There is a very strong smell of carbolic acid, which smell continues for many days after embalming. 4. The operator should have gloves on when using the injection, as carbolic acid is extremely corrosive, and quickly destroys the cuticle. Thus, even when its action has been slight on the epidermis, it takes weeks before the skin loses its roughness, the hands always presenting the appearance of being unwashed. 5. Post-mortem rigidity and cadaveric lividity disappear during embalming. 6. When the operation is over, the cheeks and lips of the corpse should be slightly touched with rouge, so as to give the face a more natural appearance.

Cost and Uses of Embalming.—The price of Dr Vivodtsef's apparatus for embalming is from 20 to 30 shillings. The fluid (if the alcoholic solution be employed[1]) must be estimated at, on an average, two shillings the pound avoirdupois; and of this fluid an amount equal to at least one-third the weight of the body will be required. Thus, to embalm a person of 12 stone, the cost of material would amount to about £5, 12s.; to embalm a child of fourteen would cost about £2, 15s.; while an infant up to its second year could be preserved for about 30s. If the carbolic acid, as lately used by Dr Vivodtsef, be dissolved in equal parts of water and glycerine instead of pure alcohol, the price of embalming would be one-half, if not less, of the above estimate, as the glycerine need not be of the best quality.

The uses of a cheap and easy method of embalming are threefold. *1st*, It will enable people to procure the bodies of those of their relatives who have died away from home free from decay, and presenting hardly any post-mortem change. *2d*, It might, as a hygienic measure, be advantageously introduced into large towns, where, as in Edinburgh and Glasgow, the cemeteries are situated in the very centre of the city, and where the dead are placed in family vaults instead of being regularly interred. *3d*, It will prove of service to anatomists, as bodies can thus be kept for many months in the dissecting-room, without the muscles, bloodvessels, or viscera undergoing any anatomical change.

Application of the Process to the Lower Animals.—Although no experiments have as yet been performed in regard to embalming the bodies of lower animals, I think Dr Vivodtsef's an excellent process for preserving them, and much cheaper than stuffing in the ordinary manner. The limbs and the back can be made to assume any position by passing iron wires through them, while the shrinking which the muscles undergo after a few months would be so slight as to be barely noticeable. Thus birds and the smaller mammalia could be preserved at a very small cost of time and money. The great advantage of this mode of preserving animals lies in the fact that the head and skeleton are left intact. In making this suggestion, however, I am not speaking from experience, but am merely advancing in theory what may prove of use in practice.

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[1] As pure alcohol is dear in Scotland, the methylated spirit would, I think, answer equally well.

Examples of Embalming.—Of the success which attends Dr Vivodtsef's plan of embalming, I have been convinced by numerous specimens he has shown me of bodies that have remained in a thorough state of preservation after having been kept for many months under the most favourable conditions for decay.

Three examples, however, will, I trust, suffice. The first of his cases to which he directed my attention was that of an infant about a year and a half old, which he had kept under the sofa of his study, a warmly heated room, for eight months. In appearance the baby looked as fresh as though it were just dead. In this instance the injection was effected through the femoral arteries only. The second example was that of a boy three years of age, whose body was exposed, in a glass gallery, to the sun's rays, and to all influences of the weather, for many months. The only change observed was after the sixth week, when the corpse grew thinner and assumed the dimensions it presented before the operation. The third case, in the embalming of which I assisted Dr Vidotsef, was that of the late Mr Burlingame, who died here last February. I have since learned, through the kindness of Governor Curtin, United States Minister at St Petersburg, that Mr Burlingame's coffin was opened on its arrival in America two months after the operation, and that his body, which lay in state for several days, was in a perfectly fresh condition. In all the above-named cases the alcoholic solution was used.

Dr Vivodtsef has lately shown me several injections with the glycerine solution; but although apparently successful, too little time has elapsed since he tried it to pronounce any opinion regarding its value. The expense, as already stated, will be materially lessened if glycerine and water might be substituted for alcohol.

Dr Vivodtsef's theory is, that the glycerine solution, by evaporating more slowly than the alcoholic, retards the drying up of the body. With all deference to Dr Vivodtsef's opinion, however, I cannot help considering the alcoholic preferable to the glycerine solution, for the following reasons:—1*st*, It dissolves carbolic acid much better. 2*d*, Owing to its volatility it permeates the tissues more thoroughly. 3*d*, Being more limpid, it can pass through the capillaries with greater ease. Moreover, it is probable that a body will mummify as soon when preserved with the glycerine as with the alcoholic liquid. At any rate, we know that carbolic acid, dissolved in alcohol and pumped into the arteries by means of Dr Richardson's apparatus, will keep the body in a perfectly fresh and natural state for at least six months. Indeed, so perfect is Dr Vivodtsef's process, so thorough the antiseptic action of the fluid he employs, and so completely does that fluid reach and pass through the smallest capillaries, that the minute structure not only of the abdominal and thoracic viscera, but even of the fibres of the brain, undergoes no alteration, and can be demonstrated with the microscope many months, perhaps even years, after embalming.

Its success, its cheapness, and the quick, clean, and easy manner in which it can be performed, will make Dr Vivodtsef's method of embalming highly valued both by the profession and the public, and, until something better is proposed, invariably resorted to in those cases where, for sanitary reasons or from feelings of affection, it is desirable to preserve the dead from decay.

ARTICLE IV.—*Over-population and its Remedies.* By F. PAGE ATKINSON, M.D.; late Surgeon, St Bartholomew's Hospital, Chatham, and Royal South London Dispensary.

NO one can read of the widespread poverty which exists at the present time without inquiring as to the causes which have brought it about, and the means that can be adopted for its cure. It appears to be so great and so increasing an evil, that we are compelled, in self-defence, to use all the means in our power to stop it. The chief causes appear to be,—

1. An increasing love of grandeur and luxury.
2. An increasing desire to occupy a position which involves an expenditure equal to, or even beyond, one's annual income.
3. The various vices of mankind.
4. Over-speculation.
5. Over-population.

This last cause is considered to be by far the most important, and it is consequently receiving the greatest amount of attention. In order to relieve the existing pressure it is proposed,—

1. To encourage emigration.
2. To limit population.

The first is admitted by all to be by far the best plan, if it can be sufficiently encouraged, for relief in this way would be afforded to the mother-country, while at the same time it would be advantageous for the colonies; but hitherto, in spite of encouragement, it has progressed at a very slow rate. If, however, the following scheme were carried out, some results of importance might, I think, be very quickly produced. All persons found begging should be taken up and handed over to the parish authorities; and these should be empowered to transport the able-bodied of both sexes to those parts where, by fair industry and perseverance, they might gain sufficient for their own support. The home poor would thus consist simply of the maimed and halt. Limitation of population has been greatly urged on the following grounds,—

1. Poverty would be diminished.
2. Marriage would not be so long delayed.

3. Prostitution would be diminished, as well as the spread of phthisis, cancer, syphilis, etc.

Those who argue on this head say, that many a man at the present time abstains from marriage from calculating, as he is bound to do, what is the result; and that many a married man, scarcely able to meet the wants of his increasing family, is obliged to leave his children at his death dependent upon the tender mercies of the world. They contend that every man should use foresight, and save his offspring that misery and wretchedness to which they are likely to come, though he is not bound to abstain from the obligations which marriage imposed. Among savage nations the population is kept down by,—

1. Fearfully fatal epidemics and wars.
2. Infanticide.
3. Cannibalism.
4. Wholesale murder.

In Great Britain, owing to sanitary arrangements, *epidemics* are to a certain extent warded off, and, upon the whole, are decidedly less dire in their effects.

Phthisis seems to diminish in proportion to the amount of drainage.

Wars are less frequent, shorter in duration, and consequently upon the whole less fatal, so that the ordinary checks to increase of population are diminishing, while the produce of the soil (*i.e.*, in proportion to the increase of population) keeps diminishing also.

Among the artificial checks which at the present time exist in English society are,—

1. Prolonged suckling (which often produces serious results).
2. Delayed marriage.
3. Prostitution, }
4. Abortions, } resulting from 2.
5. Baby-farming, }

But these, they own, are more or less detrimental to health and morality, and as such ought to be entirely discarded; and they say that no check ought to be sanctioned by the world at large, or by medical men in particular, which offends either public taste or is injurious to health. From this it might be supposed that conjugal chastity was implied or advocated, but such is not the case.

The chain of argument, then, adopted by those in favour of the limitation principle, stated shortly, is this:—Over-population causes distress. Limit population, and all would find employment and the means of support. Misery would be lessened. Marriage would be more frequent. Prostitution, abortions, baby-farming, etc., would be almost entirely done away with.

Though this argument at first sight seems very plausible, let us carefully consider whether, from the adoption of such a course, we could really expect such strikingly beneficial results. For my own part, I cannot but think that the idea of limiting population, with a view to providing all with employment and the means of support, is entirely a wrong one; for this method of proceeding would be simply equivalent to trade protection, which we know, from continued experience, to be decidedly disadvantageous. The various trades-unions in the country aim at protecting men by limiting the number of apprentices. In this way they expect that competition will be lessened, and the price of labour raised; but they forget, the less the competition the less perfect the work, and the less perfect the work the less encouragement will be given to it. Then, again, all countries would be compelled to agree to some regular plan for the purpose, otherwise those nations that did not adopt it might secure, from the perfection and cheapness of their work, the trade of nearly the whole world. Emigration also would have to be stopped, or else countries containing great mineral and natural wealth would still be overcrowded, while others would be nearly deserted. Limitation of population means limitation of trade. Man creates work for man, and hence misery would be saved to those unborn, but not to those living. Everything flourishes best under hardships and trials. Hannibal and his army would certainly have done better if the luxuries of Capua had not fallen in their way. Religion seldom advances much except when there is much opposition. The great engineering works of present and past times would never have been carried out except for the difficulties that interposed themselves in the way of man. Provision for all, with little or no work or great ease in obtaining work, means retrogression and poverty. Countries and cities decay more as the result of over-indulgence than poverty; *e.g.*, Rome, Carthage, Nineveh, Babylon, Greece, Egypt, Spain, etc. Though the Romans by their large conquests could command almost any amount of supplies, and population was lessened by war, etc., it receded, as other nations had done before. Again, in America at the present time, though capable of supporting not only itself but other nations by its soil, production is suffering from starvation, and thousands are out of employment. Limitation of population is contrary to the Divine command—"Increase and multiply, and replenish the earth." The Jews, the most highly favoured people, were exceedingly fertile. The two most thickly-populated countries in Europe are England and Belgium, and these are also the most prosperous. Limit population and you limit the means for colonizing foreign countries, as well as the means which small and weak nations have for defending themselves against the encroachments of the strong. Then, again, it would be difficult to know at what period in the formation of new countries to bring on such a scheme, because all will admit, I think, that for a certain time the more hands there are the better. Moreover, after any great war, the ban placed upon children would have to be withdrawn, to make up for the deficiency, though it is extremely doubtful whether, when once limitation had been in force, the withdrawal of the restriction would be of any service. Admitting that limitation might cause marriage to take place at an earlier age, it is extremely doubtful whether prostitution would be in any way diminished; for in France, where there are recognised checks in force, it seems to be just as much practised in private as ever. From such considerations, then, I think we are bound to oppose the introduction into society of any such schemes both in the interests of happiness and morality.

ARTICLE V.—*Gangrene of the Integument of the Leg from a Contusion; Fatal Termination, due to Splenic Cachexia and the Formation of Fibrinous Coagula in the Right Side of the Heart.* By J. FAYRER, M.D., C.S.I., Bengal.

A BENGALI student, named P. D., aged about twenty, was admitted into the Medical College Hospital on the 15th of April 1870, suffering from the results of a contusion on the right leg. He says that he tripped and fell, eight days before admission, over some bricks, and thus bruised himself, but was not seriously hurt. The part became painful, the leg swelled, and, being unable to walk, he came to the hospital. He had been suffering from frequent attacks of malarious fever, and enlargement of the spleen, for the last five months: his appearance confirmed this statement.

The surface of the contused and abraded integument had been weeping a bloody sanies for three days, and for four days he had been unable to rise from his bed. The leg and knee were œdematous. The bruised portion, which was just below the knee-joint, looked as though it were becoming gangrenous; the temperature was low, and sensation diminished, the limb generally painful. He was depressed; pulse small and feeble. No diarrhœa. He was ordered stimulants and quinine. Carbolic oil dressing was applied to the injury.

He remained in this state for two days, during which time the injured part became gangrenous to the extent of about two inches. The respiration began to be hurried on the 18th; slight return of fever in the evening, but temperature in axilla not above 99·4, generally much lower. Ammoniacal stimulants were given, both by enema and in the usual way, but there was no improvement: the respiration became more gasping and hurried, no murmurs were heard over the pulmonary artery; the heart's sounds became more feeble, the respiratory sounds gradually diminished, and, in a state of extreme cardiac apnœa, he died at midnight of the 20th.

The post-mortem examination was made on the 21st. The liver was of normal size, but discoloured from commencing decomposition. The spleen was much enlarged, the kidneys healthy; the lungs were somewhat congested hypostatically; a portion of the lower lobe of the right lung was consolidated.

On opening the heart a firm fibrinous coagulum was found extending from the right auricle, where it was reddish, into the ventricle, where it was straw-coloured; thence, firm and fibrinous, into the pulmonary artery and its minute subdivisions; a similar one was found in the left cavities, extending into the aorta.

The integument was gangrenous for several inches down the leg. The knee-joint was not compromised, and on being laid open its structures were normal.

There was certainly not sufficient in this case, in the mere gangrene of the integument of the leg, to account for death in an ordinary individual; but in a person suffering from malarious blood-poisoning, and enlargement of the spleen, it was more than sufficient. Probably in no condition of disease is the formation of fibrinous coagula more likely to occur, on the least disturbance, than in splenic or malarious cachexia. In a marked case, such as this, where the spleen was four or five times its natural size, it may be said that there is nothing remarkable in the termination of the case; for, do we not see it almost daily in the cases of cancrum oris, sloughing ulceration, and necrosis, that are unhappily so common in Bengal, and probably in other localities, wherever that condition called "malaria" is rife? The imperfect condition of the blood-making organs, and the impoverished blood they elaborate, are amply proved and demonstrated in the anæmia, and in the great tendency to disintegration and death of the soft tissues and bones; whilst the evil results of hyperinosis are seen in the limbs or other parts of the body, gangrenous from embolism, when it occurs in the systemic or arterial circulation, and in the œdematous or gangrenous limbs also, when it occurs in the venous system; or, still worse, in the multiple deaths of portions of the viscera, which are so frequently seen in the so-called pyæmic conditions generally met with after wounds and injuries, though by no means unfrequently idiopathically.

But it is the formation of the fibrinous coagula at the very fountainhead, in the cardiac cavities themselves, that I would especially notice, and particularly that very fatal form of it which, occurring in the pulmonary side of the circulation, is so frequently fatal to life. I have frequently called attention to the subject, as one of great importance in a surgical point of view, for it is not only in cases where an enlarged spleen renders almost any operation impossible, and causes almost any wound to be fatal, but in many others, whether of wound or injury, where there is no obvious disease of the spleen, and where all seems to be, and to promise well, that it may and often does supervene and rapidly carry off the sufferer. The condition is one most common in exhaustive diseases, and it is, no doubt, often one of the latest pathological phenomena manifested by the moribund; but it is more than this, for, as I have frequently said, it may set in where there is no appearance of exhaustion, when repair and nutrition are going on satisfactorily, and within twenty-four or forty-eight hours carry off the patient, whose body after death presents no solution of the cause of death beyond a firm white adherent clot in the right auricle or ventricle, or it may be just at the ostium of the pulmonary artery, which is indeed the *janua vitæ.*

This condition of fibrinous coagulation, taking place in the right side of the heart or in the pulmonary artery, is one of the dangers that the subject of a surgical operation, wound, or injury has to encounter, and not merely as the last act of a series of pathological processes—the result of exhaustive or prolonged disease—but an original and dangerous consequence of some blood change that has taken place as a result of the operation. What the nature of this change may be I am uncertain; it is an imperfect, or rather a post-perfect, condition that may perhaps arise out of the presence of matters retained in the blood that should have ministered to the nutrition of the part removed, in cases of amputation or ablation of parts of the body: a condition somewhat analogous, perhaps, to the retention in the body of a secretion that should have been eliminated, or, in cases where no removal of parts has occurred, to some disturbed condition of innervation, in which the blood itself is imperfectly elaborated, and rendered prone to this fibrinous coagulation. I have a strong suspicion that climatic influences are not without influence in originating this dangerous state. In Bengal, all are more or less under the influence of malaria. It is true, happily, that in a large majority of persons its effects are not generally perceptible, and malarious or splenic cachexia, though common, is not universal; still, no doubt, all are more or less affected; and as I have on another occasion remarked, an attack of ague and fever is perhaps one of the least common ways in which it expresses itself. As we know that, in aggravated cases of malarious poisoning, death of tissue and hyperinosis are common, so it is very possible that a more or less malarious state of the blood may determine its occurrence in many of the cases that occur in this country after wounds or operations. My recollection of the causes of death in Europe after operations and wounds is not sufficiently accurate to enable me to institute any comparison from personal experience; but from what I have read and noted of what is said on this subject by authorities in Europe, I am inclined to think that either this cause of death is very unfrequent or has been but little noticed there.

I do not wish it to be understood that I regard this as altogether due to a malarious condition of the blood. I know that, although it may not have been noticed as a result of surgical operations, Dr Richardson long ago pointed out its tendency to occur in exhaustive diseases, under circumstances which, however low and depressing, were not at all events suggestive of what we understand by malaria in this country; nor can I help thinking that a pathological state of the blood, capable of producing so many important changes as malaria does, may have something to say to this also.

In considering the question of a surgical operation here, one of the first and most important inquiries made is, whether there be any indication of malarious blood-poisoning, as evidenced by anæmia, enlarged spleen or liver. Such conditions being present, no operation that is not necessary to preserve life from present and imminent danger is attempted; and if the urgency of the case should be such as to demand an operation, or if in those doubtful cases where one has to balance between the present inconvenience and the remote dangers of some surgical condition, or the evil chances of a state of health which, though perhaps not absolutely indicative of malarious poisoning, is not free from a suspicion of it, we do operate,—we know that either gangrene of the wound, some pyæmic condition, or the sudden, rapid, and fatal fibrinous formations in the right side of the heart may be dreaded.

In the April number of the *Edinburgh Medical Journal* of 1870, I noticed the following remark by one of the most scientific of the rising generation of surgeons—Mr Annandale—in reference to an amputation at the hip-joint (page 883):—

"The disease in this case was a cancerous tumour affecting the lower third of the femur, and the patient lived until the fifth week, when he was suddenly seized with difficulty of breathing, and died forty hours after. The post-mortem examination of this patient showed a partially decolorized clot in the pulmonary artery; the surfaces of the flaps were firmly united, but there was an abscess in the acetabulum; there were no morbid traces of pyæmia."

I have no doubt that if Mr Annandale will remark the cause of death, especially in all cases that occur after great operations where there is a constitutional cachexia, or where a large portion of the body has been removed, he will find that this cause of death is not unfrequent.

If such be the case, we can easily understand how it is that the group of unfavourable conditions making up what Sir J. Simpson calls "Hospitalism," with malarious cachexia superadded, may determine the occurrence of these coagula; and an additional reason is furnished for the isolation and segregation of surgical patients who have to undergo, or who have undergone, operation. It points also to the necessity for most watchful care and prophylactic treatment, both before and after the surgical operation.

ARTICLE VI.—*American Hospitals for the Insane, compared with those of Britain.* By W. LAUDER LINDSAY, M.D., F.R.S.E., Physician to the Murray Royal Institution (for the Insane), Perth.

IN the spring of 1870 (April and May), I carried into execution a long-cherished project to visit types of the best hospitals for the insane in the United States of America and the Canadas. I considered it a much better investment of my time to examine leisurely and well a few typical or representative institutions, than to visit hurriedly and superficially a greater number. The time at my disposal being very limited, I confined myself, therefore, to the single state of New York, and the two Canadas (Upper and Lower, or East and West, otherwise (now) known as the Provinces of Ontario and Quebec). The institutions to which I gave special attention—generally devoting a day or half a day to a leisurely inspection of each—were :—

1. Bloomingdale Asylum, in the suburbs of New York; an institution for the affluent private insane.
2. Sanford Hall, Flushing, Long Island, near New York; a private asylum, also for the wealthy.
3. The County Asylum, Flatbush, also on Long Island, near New York; for paupers.
4. The State Asylum at Utica; for both private and pauper insane.
5. The State Asylum for the (Hudson River) Eastern Districts of New York, in course of erection at Poughkeepsie; intended, like the Utica Asylum, for both private and pauper patients.
6. The Provincial Asylum for Ontario at Toronto, Canada W.; a mixed public asylum, like those at Utica and Poughkeepsie.
7. Belmont Retreat, near Quebec; a private asylum for the affluent—more especially for inebriates.

These establishments, I believe, fairly represent the different classes of lunatic asylums in the American States, with the exception of those special ones for criminals, inebriates, idiots, and the chronic insane poor. No. 1 corresponds to such establishments in Scotland as the Murray Royal, or Crichton Royal, Institutions; or in England to Coton Hill, Stafford; Wonford House, Exeter; or Barnwood House, Gloucester. Nos. 2 and 7 are the equivalents of Saughton Hall, Scotland; and Ticehurst, Brislington House, and other private asylums in England. Nos. 4 and 6 correspond to the Royal Chartered Asylums of Scotland, *e.g.*, those of Glasgow, Edinburgh, Montrose, and Aberdeen; while No. 3 represents the County Asylums of England, or the District Asylums of Scotland,—for paupers.

There were several other asylums that I should have liked much to have visited, as representative institutions of their kind, and which I hope still to visit on the occasion of some future holiday—viz., the two new Philadelphia asylums for the affluent, under Dr Kirkbride; The Retreat, Hartford, Connecticut, under Dr Butler; and the Northampton Asylum, Massachusetts, under Dr Earle.

Generally speaking, I was received most kindly and hospitably; and I am glad of the present opportunity of offering my thanks for the attentions bestowed—more especially to Dr Brown, of Bloomingdale; Dr Bristow, of Sanford Hall; Dr Chapin, of Flatbush; Dr Andrews, of Utica; and Mr Backus, the Resident Engineer at Poughkeepsie.

My object in visiting American asylums was that which has led me also to visit those of several other foreign lands,[1] as well as the best of those of England, Scotland, and Ireland—viz., the desire to make myself acquainted with those peculiarities of each that might be adopted with advantage in the institution of which I have professional charge. In other words, my aim was to study the excellences of those foreign or home asylums—not to discover their defects. I have seen too much of the world to be tainted with that egregious egotism, which believes there are no institutions—whether for sane or insane—comparable with those of England.[2] English asylums have their excellences, no doubt; but they have also, like those of other countries, their faults; and it has been with a view to the rectification or remedy of those faults, so far as they are reflected in the establishment to which I am officially attached, that I have given myself the trouble and put myself to the expense, during my limited annual holiday leisure, of visiting the asylums of my own or other countries.

It must be confessed, that among alienists in this country there prevails an amazing kind and degree of ignorance regarding, and prejudice against, American asylums, and everything connected with lunacy affairs in the United States. The feeling or belief is common at home that, as regards the management of lunatics and of lunatic asylums, we have nothing to learn from America.[3] I have, however, visited very few asylums in other countries, or even in our own, in which there was absolutely nothing to learn, nothing to modify and adapt with advantage to local or special requirements; and it would have been strange indeed had it proved that the Americans (a nation distinguished alike for their fertility of resource; their ingenuity in mechanical invention, and in its applications to the daily requirements of life; their general enlightenment and enterprise; their philanthropy; their liberality of purse as well as of opinion—the variety and number of their charitable institutions) could show us nothing worthy of consideration or adoption in our own far-from-perfect asylum system! So far from its being the case that we have nothing to learn from the Americans in the treatment of our insane, I will, I think, have no difficulty in showing that, in not a few important respects, they are decidedly (to use one of their own characteristic expressions) "ahead;" and it is many years since I had occasion to point out a similar superiority in regard to the quiet and unobtrusive, but much-nearer-to-Britain, country of Norway.[4] It may perhaps (though it should not) be comforting to our national self-esteem to know that in certain respects, in the treatment of their insane, the Americans are behind us,[1] while in many particulars they are simply similarly situated. My present subject, however, does not include any consideration of the points regarding which our American cousins are behind ourselves, or simply on equal footing. My purpose is not to discuss the defects, but the excellences, of American asylums and lunacy laws or procedure—those excellences more especially which it would be for our advantage to imitate or adopt. It may be, and unquestionably is, desirable for Americans to be made thoroughly cognisant of their errors or defects in respect of their lunacy system, because such a knowledge must be the first step towards the correction of error, the remedy of negligence. But it can serve no good purpose for us to know that others are as bad as ourselves, have committed the same errors, and have naturally reaped the same fruits thereof. In truth, the less we say of the errors of our cousins (*quoad* the management of their insane) the better for our own reputation for common sense: for the faults of other countries in this respect have arisen too frequently from an excessive confidence in the excellence of the asylums and asylum-system of England, and from too blind a following of her unfortunate example![2]

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[1] Among others, New Zealand, Australia, Norway, Switzerland, and Italy.

[2] So long ago as 1858 I showed in how many respects English asylums are behind (*e.g.*) the Norwegian State Asylum at Christiania.

[3] Even Dr Robertson of Glasgow (who cannot plead ignorance, inasmuch as he spent three months in 1868 in visiting American asylums, and has recorded his impressions in the "Journal of Mental Science," vol. xv., 1870, p. 49, and "Glasgow Medical Journal" for August 1869) wrote me in August 1868: "Upon the whole, there did not appear to be much worth copying."

[4] "Insanity and Lunatic Asylums in Norway."—Journal of Psychological Medicine, April 1858.

Until the period of my visit to the United States, I participated, I am now ashamed to say, in both the ignorance and prejudice of which I have spoken as characterizing the English feeling regarding American lunacy matters. But my recent visit has dissipated any prejudice that existed in my own mind, and has gone far to correct my ignorance. My knowledge of American asylum affairs is not, however, confined to the results of my visit in 1870. For the last fifteen years, I have been in the habit of receiving and carefully studying the annual reports of the chief asylums of the United States and the British North American Provinces, and in particular those of the following alienists and hospitals:—Dr Gray, Utica; Dr Kirkbride, Philadelphia; Dr Ray, Butler Hospital; Dr Tyler, M'Lean Asylum; Dr Butler, The Retreat; Dr Earle, Northampton; Dr M'Farland, Jacksonville; Dr Bemis, Worcester; Dr Chapin, Flatbush; Dr Cleaveland, Poughkeepsie; Dr Bancroft, Concord; Dr Buttolph, Trenton; Dr Workman, Toronto; and Dr De Wolf, Halifax. To all these gentlemen my acknowledgments are specially due, as well as to the following:—Dr Jarvis, Dorchester, Mass., for many of his numerous and valuable contributions to the progress of psychological medicine in America; Dr Howe, Boston, for the admirable reports of the Board of State Charities of Massachusetts; Dr Andrews, Utica, for a number of reprints from the *American Journal of In-*

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[1] *Vide* "Notes of a Visit to American Asylums," by Dr Robertson of Glasgow.—Journal of Mental Science, vol. xv., 1870, p. 49.

[2] *Vide* "Suggestions for the proper supervision of the Insane, and of Lunatic Asylums, in the British Colonies."—British and Foreign Medico-Chirurgical Review, Oct. 1869, p. 488.

sanity, of which he is one of the sub-editors; and Dr Brodie, Edinburgh, for the loan of various American blue-books, or their equivalents.[1]

My present object, then, is to contribute towards the dissipation of the ignorance and prejudice that are too prevalent in this country regarding the asylums and lunacy affairs generally of our American *confrères*, by making known to my fellow-alienists on this side of the Atlantic some of the excellences of American asylums—some of those features in their lunacy laws and procedure as to which they contrast favourably with those of Britain.

So little is known in this country of even the number and names of the leading asylums in the United States, that no apology appears necessary for introducing here a simple tabular enumeration, the more especially as it is perhaps necessary for the proper understanding of my subsequent comments on American asylums :—

Enumeration of the principal Lunatic Asylums of the United States in 1870.

Name of State.	Locality of Hospital.	Character of Inmates.
1. New York.........	1. Bloomingdale,*........................	Private patients: affluent.
...	2. Blackwell's Island,*	Paupers.
...	3. Ward's Island,*......................	Paupers.
...	4. City Asylum,*	Inebriates.
...	5. Flatbush, Long Island,*	Paupers.
...	6. Sanford Hall, Flushing, Long Island,*	Private: affluent.
...	7. Utica: for Central Districts,.....	Pauper & private, (= mixed.)
...	8. Poughkeepsie: Eastern Districts,	Do. do.
...	9. Buffalo: Western Districts,......	Do. do.
...	10. Ovid; Willard Asylum, ...	Chronic insane.
...	11. Binghampton, ...	Inebriates.
...	12. Auburn, ...	Criminals.
...	13. Syracuse,..............................	Idiots.
...	14. Canandaigua; Brigham Hall, ...	Private: affluent.
2. Massachusetts,...	15. Worcester.	
...	16. Taunton.	
...	17. Northampton,.........................	Paupers: mostly Irish.
...	18. Tewksbury,...........................	Chronic insane.
...	19. Somerville; M'Lean Asylum.†	
...	20. Winthrop.†	
...	21. City Asylum,†	Paupers.
...	22. Washingtonian Home,†	Inebriates.
3. Pennsylvania,....	23. Philadelphia; new asylum for males,‡	Private: affluent.

* In or near the city of New York. † In or near the city of Boston.
‡ In or near the city of Philadelphia.

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[1] I have also to express my indebtedness to the Smithsonian Institution, Washington, and to Dr Browne, ex-Commissioner in Lunacy for Scotland, for the facilities which they have afforded in the exchange of American for British Asylum-Reports.

Name of State.	Locality of Hospital.	Character of Inmates.
3. Pennsylvania,.... *continued.*	24. Philadelphia; new asylum for females,‡	Private: affluent.
...	25. Philadelphia Hospital; Insane Department,‡	Paupers.
...	26. Media; the Sanatorium,‡.........	Inebriates.
...	27. Frankford; the Friends' Asylum‡	Quakers.
...	28. Harrisburg.	
...	29. Pittsburg: Western Districts,...	Mixed.
...	30. Dixmont: Western Districts,....	Do.
...	31. Danville.	
4. Rhode Island, ...	32. Providence; Butler Hospital.	
5. Connecticut, ...	33. Hartford; the Retreat.	
...	34. Middletown.	
...	35. Litchfield; Springhill, ...	Private.
6. New Hampshire,	36. Concord.	
7. New Jersey,......	37. Trenton.	
8. Vermont, ...	38. Brattleboro'.	
9. Maine, ...	39. Augusta.	
10. Dist. of Columbia,	40. Washington, ...	Soldiers, sailors, and all kinds of Govt. employés
11. Maryland,.........	41. Baltimore; Mount Hope,.........	R.Catholics, mxd.
...	42. Baltimore,...........................	Jews.
...	43. Baltimore; New State Asylum,	Paupers.
...	44. Baltimore; Old Maryland Hsptl.	Private.
12. Ohio,...............	45. Cincinnati; Longview.	
...	46. Mill Creek.	
...	47. Newburg: Northern Districts.	
...	48. Dayton: Southern Districts.	
13. Indiana,............	49. Indianapolis.	
14. Illinois,.............	50. Jacksonville.	
...	51. Chicago, ...	Inebriates.
15. Virginia,...........	52. Williamsburg: Eastern Districts.	
...	53. Staunton: Western Districts.	
...	54. Weston: Western Districts.	
16. Kentucky,.........	55. Lexington: Eastern Districts.	
...	56. Hopkinsville: Western Districts.	
17. Carolina,...........	57. Raleigh: Northern Districts.	
...	58. Columbia: Southern Districts.	
18. Tennessee,.........	59. Nashville.	
19. Louisiana,.........	60. Jackson.	
20. Mississippi, ...	61. Jackson.	
21. Missouri, ...	62. Fulton.	
...	63. St Louis; St Vincent Asylum.	
22. Michigan,..........	64. Kalamazoo.	
23. Minnesota, ...	65. St Peter.	
24. Wisconsin, ...	66. Madison.	
25. Iowa,................	67. Mount Pleasant.	
26. Georgia, ...	68. Millidgeville.	
27. Alabama, ...	69. Tuscaloosa.	
28. Texas, ...	70. Austin.	
29. Kansas, ...	71. Ossawattamie.	
30. Oregon,............	72. Portland.	
31. California,.........	73. Stockton.	
...	74. San Francisco,.......................	Inebriates.

‡ In or near the city of Philadelphia.

Dr Andrews of Utica tells me (in a letter, of date July 1870) that there are as yet *no* institutions for the insane in the following five states—Delaware, Florida, Arkansas, Nebraska, and Nevada. Nor are they to be found, so far as I am aware, in the following "territories," belonging to the western states, which are not yet fully settled—New Mexico, Washington, Utah, Colorado, Montana, Dakotah, Idaho, Arizona, and the Indian territory. How the insane are disposed of in these states and territories, whose population must considerably exceed a million,[1] I am not aware. In the more fully settled states of the Union, lunatics are confined partly in almshouses and prisons; but I have no means of knowing whether, or to what extent, such establishments exist in the younger states and territories above named.

The foregoing table does not include the asylums of *British* North America, which are to be found enumerated, however, in the "Journal of Mental Science" (vol. xiv., 1869, p. 466), by Dr De Wolf, of Halifax, Nova Scotia. Nor does it include idiot schools and certain other special institutions in the United States. The table was compiled from a great variety of data, which include more particularly (1) a table given in the 39th Report of the Retreat, Hartford (1863, p. 25), which enumerates, however, only 47 hospitals for the insane in the whole United States: from which it would appear that there has been an increase of 24 during the last seven years. (2) An enumeration given in a paper by Dr Jarvis, on "The influence of distance from, and nearness to, an insane hospital, on its use by the people." (3) A letter from Dr Jarvis, of date January 1870, regarding the *typical* or representative United States asylums—those, to wit, most worthy of visit by strangers. And (4) A list of the most recently erected asylums of the outlying younger states, kindly supplied me in July 1870 by Dr Andrews. My table is as complete and accurate as my data enable me to make it; but it is probable that it does not enumerate *all* the asylums of the United States, while it is possible that error may have crept in by the enumeration of the same hospital under different names, or by referring only one instead of two or more institutions to certain localities. The veteran Dr Jarvis (in a letter of date January 1870) informs me that he some time ago drew up for Sir James Clark, who was then compiling his "Biography of Conolly," a full list and description of American hospitals for the insane, giving their population, the acreage of their grounds, and other particulars, that could not fail to be of great interest to European alienists. Dr Jarvis expressed to me a strong desire that his account should appear in the "Journal of Mental Science." I recommended accordingly its insertion to Professor Maudsley, the editor of the said journal, and he obtained the MSS. from Sir James Clark for the purpose of publication. Hitherto, however, it has not, unfortunately, appeared; but I trust that its publication is only temporarily delayed.

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[1] Appleton's "Handbook of American Travel" for 1867 represents their then agregate population as 977,233.

Of 46 American asylums[1] enumerated by Dr Butler, in his table, of date 1863, 32 are described as state institutions, 7 as corporate, 4 as pauper, 2 as mixed, and 1 as a general government establishment. Only 1 had over 700 patients, 2 over 500, 3 over 400, and 6 over 300. The majority of the United States asylums are *state* institutions, of a mixed character as regards their population; that is, they admit both "free" (gratis) and "pay" (private) patients.[2] The former are not necessarily uneducated paupers,[3] nor the latter affluent; for there are cases in which *every* citizen of the state has the benefit of the state asylum placed at his command without separate cost to him or his relatives,[4] while many of the private patients, just as in this country, are not far removed from pauperism, though their proper pride, or spirit of independence, revolts at the idea of gratuitous or state support. Certain asylums are intended only for certain groups of patients, such as the criminal, the affluent, the poor, idiots, or inebriates; or they admit only the acute or chronic. Some of them exclude epileptics or incurables: so that in all states of the Union only a proportion of the insane are adequately provided for in establishments. According to Dr Earle, there are no less than 13,000 insane persons in the older states alone, who are lodged partly in (*a*) poorhouses, (*b*) prisons, and (*c*) private dwellings. The arrangements of these poorhouses and prisons, which are under no proper supervision, contrast very strongly and strangely with those of the state asylums. That such a contrast exists merely indicates the necessity for proper organization and supervision, by means of lunacy boards, or some machinery equivalent thereto.

It is interesting to compare with my table the list of English asylums, as given by the English Lunacy Board in its last report (24th, 1870, Appendix, p. 84). It enumerates of

I. *Public* Asylums.	1. *County* and borough asylums,	49		
	2. Registered hospitals, .	18		
		—	67	
II. *Private* Asylums.	3. *Metropolitan* licensed houses,	42		
	4. *Provincial* do.,	65		
		—	107	
			—	174

The chief contrasts between the American and English asylums

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[1] Exclusive of Longview, Ohio.

[2] A general account of the character and government of American asylums is given in Dr Manning's "Report on Lunatic Asylums," 1868, p. 77.

[3] Into the Philadelphia asylum 40 gratis patients are admitted, but they are selected so as to be suited in education, habits, and manners, to mingle with the society of the institution.

[4] Thus, Ohio, Indiana, Illinois, Wisconsin, and California, provide asylum accommodation and treatment for *all* classes of the insane "*at the expense of the state.*"—*Vide* 30th "Report of the State Lunatic Hospital at Worcester, Mass." (1862), pp. 19, 23; and Manning's "Report on Asylums," p. 115.

—as exhibited by such statistics—are, (1) The enormous preponderance of *private* asylums in England—London alone having 42; and (2) The correspondingly greater number of *public* asylums in the United States. The foregoing statistics of English asylums include all those devoted to the custody or care of criminals and idiots.

It is not a little to the credit of American alienists, that what was probably the *first series of lectures on psychological medicine*, was delivered at Philadelphia, between 1791 and 1812, by Dr Rush, who was Professor of the Institutes of Medicine and Clinical Practice in the University of Pennsylvania. In more recent times, similar courses of lectures have been delivered by Dr Earle, in the Berkshire Medical School, Mass., and by Dr Tyler at Cambridge, Mass.[1] At the present day there are several lecturers on psychological medicine in the universities and medical schools of the United States. Thus, (1) Dr Hammond, the well-known Surgeon-General of the United States Army during the recent civil war, is Professor of "Diseases of the Mind and Nervous System" in the Bellevue Hospital Medical College, New York; (2) Dr Brown, of the Bloomingdale Asylum, is Lecturer on "Psychological Medicine and Medical Jurisprudence" in the College of Physicians and Surgeons, New York; (3) Dr Thacker is Professor of "Psychology and Diseases of the Nervous System" in the Cincinnati College of Medicine and Surgery; and (4) Professor Bauduy, of the St Louis College of Physicians and Surgeons, instituted in 1869 a "Psychological Clinic"[2] at the St Vincent Asylum, St Louis, Missouri. It is to be specially observed that, in two of these chairs at least, the subjects of the general disorders of the nervous system and the special derangement of the mind are conjoined; which conjunction has been lately advocated by Griesinger in Germany, and by various alienists in Britain.

The American States, moreover, or rather the single state of New York, support *two* quarterly journals of psychological medicine, viz., (1) the well-known "American Journal of Insanity," which was established in 1844 by Dr Brigham, and which has since that time been, and still is, published in the state asylum at Utica, the medical staff whereof are its editors; and (2) the recently established "Quarterly Journal of Psychological Medicine and Medical Jurisprudence," whose editor is Professor Hammond; while Britain, for herself and all her colonies, has only *one* such journal.[3]

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[1] According to Dr Gray of Utica.—*Vide* his "Annual Address before the Medical Society of the State of New York." Transactions of said Society, 1868, pp. 20, 22.

[2] I pointed out, in 1858, that clinical instruction forms part of the duties of the Physician-in-Chief of the Norwegian State Asylum at Christiania. *Vide* "Insanity and Lunatic Asylums in Norway." Reprint from Psychological Journal, April 1858, p. 15.

[3] The consequence is, that in Britain, papers on psychological medicine are scattered through the pages of several general medical journals: especially the Edinburgh and Glasgow Medical Journals, the British and Foreign Medico-

So long ago, moreover, as 1844, was established also the "Association of Medical Superintendents of American Institutions for the Insane," which occupies, in relation to psychological medicine in America, the position very much that the "British Association" takes up in Britain in reference to general science, while it fulfils also part of the functions of a Lunacy Board, forming a court whose opinions or decisions are regarded with the highest respect throughout the American Union as well as British North America. This Medico-Psychological Parliament issued in 1851, 1853, and 1866, an admirable code of suggestions or regulations for (1) the Construction, and (2) the Organization, of lunatic asylums;[1] and it is on this model that the long subsequent regulations of the same kind issued by the Lunacy Boards of Scotland and England have been obviously based.

In their very nomenclature of establishments for the insane the Americans show us a good example. They speak of hospitals for the insane,[2] while we stick to the old and objectionable designation—lunatic asylums.[3] There can be no doubt that *hospital* is the more correct word for curative establishments, though the term *asylum* may be quite appropriate for the barracks, in which the chronic and incurable are massed in large groups. There is, however, in America, as in Britain, a considerable variety of nomenclature, according to the status of the inmates. Thus, one establishment for the insane bears the name of a Retreat (Hartford, Conn.); another is designated an Institution (Mount Hope, Baltimore); while private asylums, as with us, bear the ordinary names of private mansions, *e.g.*, Brigham Hall and Sanford Hall.

It will be convenient to classify (roughly) under the following heads the illustrations I have to offer of the excellences of American asylums—of those features in regard to which they stand in favourable contrast to those of Britain:—

I. *Hospital Construction.*

(*a*) Appointment of the physician as "Superintendent of Construction."

(*b*) Appointment of resident engineer, clerk, and artisan staff.

(*c*) Direct purchase of material—of the entire "plant" required.

Chirurgical Review, the Practitioner, the Lancet, Medical Times, and British Medical Journal.

[1] These propositions "On the Construction and Organization of Hospitals for the Insane," are given in Manning's Report on Asylums, p. 235; and they are appended to many of the American annual asylum reports since 1852 and 1866 (in which latter year certain supplementary regulations were added)—*e.g.*, Harrisburg for 1853, p. 27.

[2] *Vide* Thirty-ninth Report of The Retreat, Hartford, Conn. (1863), p. 26; and Eighth Report of the Illinois State "Hospital for the Insane," at Jacksonville (1863), p. 33.

[3] *Vide* article on the "Treatment of the Insane."—Scottish Review, July 1855, p. 253.

(*d*) Economization of labour by the utilization of steam and machinery. Inventiveness and fertility of resource in the workmen.

(*e*) Ventilation, by propulsion and suction, especially as applied to water-closets and sewers.

(*f*) Heating.

(*g*) Precautions against Fire.—Use of iron and stone; separation of building into "blocks;" fire brigade and its practice; steam fire-pumps; extincteurs.

(*h*) Precautions against lightning.

(*i*) Architectural Beauty.—Applications of the classic orders to fronts, porticos, colonnades, rotundas, towers.

(*j*) Internal Ornamentation.—Use of differently coloured woods; statuary; pictures.

(*k*) Special accommodation, frequently in separate "pavilions," for, *e.g.*, gymnasia, billiard-rooms, museums, lecture-rooms, reading-rooms, writing-rooms, theatres, recreation halls, bowling alleys, 10-pin alleys, conservatories, Turkish or other baths, summer-houses.

(*l*) Water-supply—unlimited.

(*m*) Size—number of patients.

(*n*) Verandahs: corridors, or halls.

(*o*) Separate parlours and dining-rooms.

(*p*) Proportion and size of single bedrooms and associated dormitories.

(*q*) Airing courts.

II. *Hospital Grounds.*—Farms; pig-feeding. Natural woodlands; rivers; deer parks; pleasaunces. Artificial (ornamental) ponds, fountains, and canals. Extent: average utilization of sewage; irrigation.

III. *Hospital Appliances.*—Applications of electricity; telegraphs. Utilization of machinery—in laundry; bakehouse. Underground railways. Use of ordinary gas-fittings; knives and forks. Waxing or oiling of floors and tables; movable bed-bottoms; reversible seats; reading lamps.

IV. *Hospital Economics.*—Utilization of waste; fat; water; steam; timber. Substitutes for coal gas; gasoline; gas from resin and petroleum. Dietary.—No diet scale; unrestricted allowance; liberal use of animal food.

V. *Hospital Staff.*

(*a*) Medical; completeness; number of assistants; special pathologist. Emoluments; status; appreciation of services. Independence of opinion and action. Holidays; travel; attending conferences. Special duties; construction. Advanced views. Consultation practice; lectureships. Original researches—in pathology and morbid anatomy; use of scientific instruments; pathological stereograms. Professional library; publication of "Journal of Insanity."

(*b*) Attendants; status; salaries; proportion to patients.

(*c*) Chaplains; of different denominations; services in rotation.
(*d*) General staff; conferences of officers.

VI. *Hospital Amusements and Occupations.*—Games: billiards for ladies; gymnastics for both sexes. Menageries; aviaries; pet animals; rabbit-warrens. Horse exercise; hunting; packs of hounds. Circular railway. "Whittling" shop. Music; organs; melodeons. Theatricals. Parlour skating. Lectures; classes; schools. Literature: "The Opal." Productive labour; annual fairs; bazaars; amusement; and other, funds.

VII. *Hospital Reports.* — General character; serial character; number and circulation; typography and binding; plates and plans; indices and appendices.

VIII. *Classification of Hospitals.* — For the acute or curable; chronic or incurable; criminal; inebriate; idiotic; coloured; different sexes. Decentralization; distribution of small hospitals. Prevention or relief of overcrowding by transfers of the chronic.

IX. *Classification of Patients in Hospitals;* according to education and culture; separate "blocks" for the noisy.

X. *Liberality.*—Of state legislatures; hospital managers; the public; the press. Gratuitous treatment in state hospitals, and its effect in relation to recovery. Donations. Benevolent and special funds.

XI. *Interest and Confidence.*—Of the public; of hospital managers. Comparative scarcity of private (proprietary) asylums.[1] Visitors. Demand for annual reports.

XII. *Lunacy Laws and Procedure.*—Their simplicity.

It is not to be understood that the foregoing peculiarities in the provisions made for the treatment of their insane dependents are characteristics of all American institutions for the insane, or of all the United States. Nor does any one, even the best, of their hospitals for the insane, or the most enlightened and liberal of their states, possess all the said advantages or even the majority thereof. On the contrary, there are many American asylums that are as deficient in special or general excellences as certain of our own. Some of the United States are as backward in proper provision for the management of their insane poor—according to the most advanced modern ideas—as is England or Ireland. But, on the other hand, the advantages, which I have enumerated, are distributed throughout the larger eastern states and their asylums—especially New York, Massachusetts, Pennsylvania, Connecticut, Maryland, Ohio, and Virginia. I have grouped the said excellences together as representing a series of advantages, in relation to which the United States, as a whole, contrast favourably with Great Britain and Ireland, also as a whole; and in respect of the non-possession of which the English asylums, and England itself, fall short of that perfection of which they are so much given to boast!

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[1] *Vide* p. 524.

ARTICLE VII.—*Cardiac Distensibility, Distention, and Dilatation.*

By J. MILNER FOTHERGILL, M.D., Senior Resident Medical Officer of Leeds Public Dispensary.

IN order better to understand the subject of the yielding of the heart-walls, one of the most serious lesions which in practice we can meet, it is desirable to divide the subject into the above-mentioned divisions, illustrating that it is not a different condition but a difference of degree with which we have to deal. One of the most marked peculiarities of muscular fibre is its capacity to stretch and then to recover itself. This is more marked, again, in organic or involuntary muscular fibre. All hollow muscular structures consist of this organic muscular fibre. The accumulation of contents produces such distention as to provoke muscular contraction and expulsion; and this too in a rhythmical manner. The fewer the muscular fibres the more distensible the organ. Thus in the bladder: in its ordinary condition the bladder may be distended to a great length, and that too without any loss of functional activity in the fibres, for in a few minutes at most the distended bladder, containing three pints or more, is empty and folded up, no bigger than a child's hand. So also the uterus, whose fibres have been for nine months unfolding, increasing in length and breadth, will frequently in a few minutes expel its contents, and be folded up like a cricket ball in permanent contraction. But let the accumulation of muscular fibre be somewhat increased, and with that increase in power there goes hand in hand a diminishing tolerance of distention. Thus, an hypertrophied bladder behind a stricture or an enlarged prostate, contracts so readily and frequently that its action may fairly be termed rhythmical; thus establishing the law of rhythm in a mass of organic fibre not usually credited with it. But when the distention is prolonged or unduly severe, even organic muscular fibre, long-suffering though it be, loses its functional activity and becomes paralyzed. This condition in the bladder is far from uncommon among bashful young men when long together in the presence of the other sex.

So in the heart. A normal amount of distensibility is possessed by the mass of organic fibre which constitutes the centre of the circulation. By distensibility is not meant here the normal distention by accumulating contents which excites contraction, but a real distention of the fibres, involving their elasticity—what Carpenter calls the secondary extension. "On appending a small weight to a vertically-suspended fresh muscle, it at first elongates suddenly and considerably (the primary extension), then much more slowly (the secondary extension)."—*Human Phys.*, 8th ed., p. 747. This distensibility, depending on the elasticity of muscular fibre, permits of many efforts which without it would be impossible. This is especially the case with the right ventricle. No one who has tried W. T. Gairdner's experiment of placing the tip of a finger on the apex-beat, and then, bidding the person hold his breath, felt the right ventricle distending, until it becomes so interposed betwixt the apex of the left ventricle and the finger that the apex-beat becomes lost, and then waited to recover it after the individul operated upon again breathes, can entertain any doubt whatever either that this normal distensibility exists, or that it interferes with functional activity, and this, too, while regular muscular contractions are going on: for the pulse, though small, is unmistakably there. This is of great service to the diver, who without this provision could not perform his feats. But still there remains the danger of over-distention leading to paralysis. This may be instant, and ending in sudden death, as in elderly persons with feeble hearts who over-exert themselves in chasing omnibuses, or it may lead to a condition of inability lasting some time. Thus a swimmer who overdoes his wind in the first contest often feels himself so unequal to another that day as to desist from further attempt. Prolonged severe exertion may induce this condition, as occurred to the writer's friend, Dr Clifford Allbutt, in one of his Alpine efforts, which lasted some hours.

Professional swimmers find, too, that they may "train off" as well as "train on," if their efforts are unusually severe and prolonged. That is, a carefully graduated course of exertion will improve the power and endurance of the right ventricle, and the athlete becomes more and more long-winded and capable of effort—this he calls "training on." If, however, the efforts be too severe, the semi-paralytic condition induced renders him less and less capable of effort, and he "trains off." This illustrates well the conditions under which the right ventricle is placed in affections of the respiratory organs. When the athlete is "training on," and is examined immediately after a prolonged effort at diving, the right ventricle is found in a state of unusual activity. The beat is powerful and diffused. There is almost palpitation as the right ventricle unloads itself of its unwonted accumulation. This distention of the right ventricle is intimately associated with the necessity for breathing, and it may ultimately come to pass that the distention is found to be really the cause of the necessity for breathing.

During this suspended respiration, however, there is no suspension of ventricular activity, and the distending right ventricle drives through the lungs a certain quantity of blood, else the left ventricle would become firmly closed. The period of time during which even the most accomplished diver can remain under water is insignificant compared to the diving feats of certain aqueous mammals.

The peculiarities in the circulation of the diving mammals are full of interest to the physician interested in cardiology. By what modifications of structure these mammals can manifest their peculiar functional power, so widely different from other mammals, however trained, is a subject so far strangely neglected.

Dr Houston read a paper before the British Association at

Dublin in 1835 on this subject, but it was only of an elementary character. The writer's knowledge of the subject is unfortunately meagre. By the kindness of Professor Turner, he was afforded an opportunity of ransacking the late Professor Goodsir's museum for preparations tending to throw light on the subject. Thus, in the right auricle of the whale are trabeculæ stretching across, as substantial as plough-cords. In the dugong, the heart is like a double nut or other double fruit; the right ventricle is as thick and strong as the left. Here the right is no mere fold of the left ventricle (as Pettigrew has shown is simply the case), but is as important in every respect. In other cetaceæ the right ventricle is remarkable for its comparative strength, as it is also in the diving carnivora. But while any undue distention of the right ventricle, calculated to produce paralysis, is thus provided against, other modifications of structure are necessitated to serve as reservoirs. These consist of immense plexuses capable of great distention, in which the blood collects. Thus in the whale there are great dilatations of the intercostal veins, which are reservoirs of venous blood. This is also the case with the dolphin and the porpoise. But Professor Turner pointed out to me in the cetaceæ also arterial plexuses attached to the serous membranes. These arterial plexuses are, he informed me, peculiar to the cetaceæ. In the carnivora they are exclusively venous. Thus in the seal the kidney is surrounded by a plexus of veins; the liver, too, is full of venous sacs like a heap of strings of sausages. So when the seal "blows," he lies flat on a rock, and by his weight mechanically empties these sinuses. Thus the indistensible right ventricle is provided for by reservoirs of venous blood behind it. For in the prolonged dives common to these animals, if the accumulation was in the right ventricle alone, paralyis must ensue from the undue distention. The principle of natural selection has, however, evolved modifications which fit these mammals for the peculiar circumstances in which they are placed in the struggle for existence. Why, however, there should be reservoirs of arterial blood in the cetaceæ alone, and why the carnivora can exist without the oxygen of arterialized blood, are questions science has yet to answer. It is certainly not necessary to the continuation of the circulation that the blood should be oxygenated in its passage through the lungs; certain, however, it is that the consumption of the oxygen contained in the blood would quickly be followed by suspension of muscular activity, while the accumulation of carbonic acid would aid in arresting muscular action. Without this oxygen muscular action cannot exist, and a blood-supply, however free, without its oxygen, is inadequate to maintain muscular activity. Thus in the heart itself, whose action can never long intermit without systemic arrest of action, the coronary veins, as Wardrop has shown, do not open into the vena cava, but perforate obliquely through the walls of the right auricle. Regurgitation into them is thus prevented, and so the heart, when so distended as to produce general venous stasis, is thus protected against any interruption of its own blood-supply; a result which would soon bring its activity to a close. Protected thus from the evil consequences of an impaired blood-supply, from paralysis, by excess of carbonic acid, as well as the deprivation of oxygen, the heart is enabled to carry on the circulation even under most disadvantageous circumstances. Still, the undue distention of the right ventricle cannot always be obviated, even by the most elaborate arrangements. T. W. King, in a most thoughtful essay in Guy's Hospital Reports for 1837, attempts to show that the tricuspid is normally insufficient, and denominates this insufficiency as the safety-valve action of the tricuspid.

The safety-valve action of the tricuspid, though a most beautiful theory, supported by elaborate experiments, is yet unproven. The experiments of Mr King were thus conducted. The nozzle of a syringe was secured to the pulmonary artery, and fluid forced into the right ventricle. In a large proportion of instances the tricuspid leaked, and sometimes freely. That the tricuspid is usually insufficient in distention of the right ventricle, Mr King has convincingly demonstrated. But there is an element of error in these experiments when critically examined. That the tricuspid is insufficient when the ventricle is distended may be admitted as proved. But the first action of ventricular contraction is to produce a backward as well as a forward flow of blood, and this backward flow drives the free edges of the auriculo-ventricular valves together. What then must be demonstrated to establish this safety-valve action of the tricuspid is this—is the tricuspid insufficient, after such contraction of the right ventricle, as shall have approximated the free edges of the auriculo-ventricular valve? This is what we must have clearly shown before the safety-valve action of the tricuspid can be considered proven. That in temporary conditions of distention of the right side this insufficiency is brought out is almost certain. But in dilatation, Rokitansky tells us that elongation of the chordæ tendineæ and enlargement of the valves go on hand in hand with dilatation of the chambers. Tricuspid regurgitation is clinically demonstrated to be associated with jugular pulsation. Indeed, if there is no perfect obstruction to the backward flow on ventricular contraction, the blood will flow as readily one way as another, and this reflux must affect the distended veins behind, and jugular pulsation becomes an absolutely necessary consequence.

In support of his theory, Mr King brings the moderator band of Reil prominently forward.

The moderator band of Reil is no-fiction, and is one of the columnæ carneæ. These columnæ carneæ are muscular bands whose function may be to prevent undue distention of the ventricular chamber, but in the majority of cases they are mere rudimentary remains. They were supposed to pass from the immovable interventricular septum to the yielding wall of the right ventricle. The yielding wall was thus restrained from becoming too distended.

This was supposed to relax the chordæ tendineæ of one of the tricuspid valves, and thus permit regurgition. This supposition involved a second one, viz., that the musculi papillares of these relaxed chordæ tendineæ were inserted into a portion of the yielding wall that was distended, and thus the valve became carried away from its fellow, and approximation was prevented. Unfortunately for this theory, again, the moderator band of Reil is inserted at the insertion of these very musculi papillares, and thus the very part of the yielding wall with which the valve is related is retained as a comparatively fixed point—the only one in fact in the yielding wall. Thus, as is readily seen, instead of the wall being fixed and the valve being allowed to yield, really the valve is fixed, while the wall is permitted to distend.[1] The moderator band of Reil is one of the columnæ carneæ, which are much more marked on the right ventricle than in the less yielding left ventricle. In the right auricle, too, are the musculi pectinati, which help the auricular wall to resist stress put upon it. In the right auricle of the whale these musculi pectinati are found as distinct trabeculæ as thick as the finger. In illustration of the means by which nature attempts to provide against ventricular distention, Professor Rolleston informs me that the absence of the sternum in the whale is really in order to allow the animal to support its right ventricle with its flappers when distended in diving. These various precautions against over-distention and its consequence—paralysis—suggest to us the extreme seriousness of that condition when once produced.

Distention.—Distention is the accumulation of contents within the ventricular chambers until the muscular fibres become stretched, and thus more or less incapable. Thus, when from any opposition quickly offered to the flow of blood, as the pressure of a tumour, or in the right side any affection implicating a great portion of the lungs, or, again, from long-continued fatigue, and thus exhaustion of the heart, the ventricular chamber is unequal to emptying itself, this distention is induced. The amount of blood remaining unexpelled is already in the ventricle, while the turgid veins and auricle are forcing in their contents under increased pressure, and thus a whole ventricleful of blood is driven, or attempted to be driven, into a ventricle already partially filled; the muscular fibres under this increased distending force yield to the length of their elasticity, as described above.

These various causes operate to some extent on the left ventricle, which is protected by its globular shape, its outside scarcely coming under the head of a yielding wall, and by its greater strength: on the right ventricle, which is almost crescent-shaped, lying around one half of the left, and normally much thinner, these causes operate with greater frequency and with greater ease. Normally equal to carrying the lesser pulmonic circulation, the right ventricle is not only taxed by any disease of the mitral valve, but is affected by any great amount of disease in the respiratory organs. Thus, in two cases of primary tricuspid regurgitation with which the writer is familiar, one followed a simple uncomplicated pneumonia, the other bronchitis. The causes therefore which affect the right side are more numerous and more trying than those which affect the left, as regards obstruction offered to the flow forward. With exhaustion and primary muscular debility and incapacity both ventricles are equally related. The amount of injury done is, however, *cæteris paribus*, in direct proportion to the length of time these causes are in action. Where a temporary cause has induced a sustained effort for a limited time and exhaustion—or, in common parlance, the person is "knocked up"—the general exhaustion necessitates rest, and is generally treated by nutritious diet. Under these favourable circumstances, the heart's labour being reduced to a minimum, the muscular fibres recover themselves, and a permanent restoration of health is induced. In support of this view I may adduce the following case:—

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[1] The insertion of the moderator band into the insertion of the musculi papillares of the chief portion of the tricuspid valve belonging to the yielding wall, is beautifully shown in a preparation of the heart of the dugong, prepared by the late Robert Knox, and now in the Goodsir Museum.

J. S., æt. 61, a tall hard-looking and strong country woman, of evidently great powers of endurance, was up night and day almost incessantly with her husband, who was taken suddenly ill, and died in twenty days of acute phthisis. At the end of this time her legs were swollen, the pulse was feeble and irregular in rhythm, there was a diffused apex-beat, and the symptoms and signs of dilatation. I distinctly remember forming a very gloomy prognosis, being more alarmed at heart symptoms then than now, after a more extended experience. She was put on a pill of digitalis and iron. The œdema of the legs soon vanished, she became equal to more exertion, the pulse grew steadier—she resumed her field-work, improved generally, and six months after not a trace of cardiac mischief remained. After another twelve months of labour no evidence of any heart trouble could be detected, and she has since remained well and active.

Now this case presented every sign and symptom of dilatation, and, to all intents and purposes, could be reckoned as such ordinarily. No doubt the muscular fibres were distended till their elasticity was involved, and they were thus rendered still more incapable. But arising from a temporary, not a permanent cause, with the removal of the cause followed quickly the effects. This case made a vivid impression on me, and induced a train of thought as to the possibility of recognising these cases at an early date, and, by the exhibition of agents inducing increased ventricular contraction and the all-important rest to commence with, putting the patient under conditions favourable to a perfect restoration to health. For it is obvious that the reduction of the ventricular chamber to its normal capacity is the most complete restoration to health; permanent dilatation, though backed up by hypertrophy, is a lower form of compensatory repair.

The question of this distention of the muscular fibres until the secondary extension of Carpenter is induced, is one of great practical moment. These fibres so stretched are still contracting rhythmically and in incessant though intermittent action. This unavoidable labour, and the impossibility of prolonged rest, render it very difficult for any reparative growth to go on. True, a compensatory growth of new tissue or hypertrophy comes to the rescue, but still the cavity remains unaltered, and the original fibres still stretched.

Thus, in all acute affections of the respiratory organs, and all acute asthenic disease, this condition of distention of the right ventricle becomes of paramount importance. We all know how anxiously we await any "mounting" of the pulse, and more especially if that increased action is followed by rhythmical irregularity.

When the latter sets in, a fatal termination is expected, and generally at no long period occurs. And yet there is no obstruction to the flow of blood from the left ventricle, which is found small and contracted. What, then, is this increased rapidity of pulse and its accompanying irregularity diagnostic of? It is the condition of the right ventricle! For the left merely keeps time with the right, and transmits such an amount of blood as comes into it. The small, quick, feeble, compressible pulse, which we all so much dread, is not caused by any inability of the left ventricle; it takes its origin in the rapid feeble contraction of the distended right ventricle —of which condition alone is it significant. For almost full on diastole from imperfect contraction, it is soon filled to such distention that the goaded fibres contract to the point of comparative ease. Like the fibres of the hypertrophied bladder behind an enlarged prostate, they contract to the amount of their over-distention, and relinquish the effort as soon as their agony is only mitigated. A comparative amount of distention is such a relief, that the wearied fibres rest as soon as this is attained. But their rest is as brief as their contraction is unsustained. Thus rapidity and feebleness go hand in hand, and then irregularity coming on tells that the wearied muscular fibres are giving up the struggle; and our experience tells us unmistakably the usual result. When thus overmatched by a demand for effort to which they are only too unequal in these conditions, we are apt to have carbonic acid poisoning. The venous blood contains more than its ordinary amount of carbonic acid, and to the troubles of the right ventricle is added the presence of an anæsthetic within itself. Cyon has shown us how carbonic acid applied to the endocardium by being held in solution by the fluid passing through the heart (Syd. Soc. Year-Book, 1867–68) produced paralysis, and cessation of action in diastole. Thus a paralyzing poison in its contents is added to the other troubles of the right ventricle. Can we, then, feel surprised that the post-mortem examination reveals a right ventricle swollen and distended with blood, while the left is small and contracted? It could not easily be otherwise.

Dilatation.—Dilatation is the condition of permanent distention. The fibres remain during the period of their histological existence stretched and partially incapacitated; but around them grow new fibres, and in their place in due time new tissue normally of the length of their extended predecessors. The condition of hypertrophy is implanted on the dilatation, and the patient settles down to a new form of cardiac condition—that of compensatory hypertrophy. Rarely are the conditions of hypertrophy and dilatation found completely dissevered: alike in their genesis, these are commonly found together—the greater the hypertrophy the better the prospect, the more completely the condition approaches to simple dilatation the gloomier the prognosis. Dilatation, too, has a necessary tendency to perpetuate itself. Imperfect ventricular contraction leads to imperfect aortic distention; the recoil, the propelling power into the coronary arteries, is in proportion to the distention; while imperfect coronary circulation leads to imperfect cardiac nutrition. Imperfect ventricular contraction, too, necessitates imperfectly-filled arteries and general mal-nutrition. Dilatation is what we all dread in valvular lesions. Here a permanent cause leads to permanent change in the muscular walls, and in and on them does our hope rest. Deprived of the aid afforded by the valves, the walls thus imperfectly supported have to carry on the circulation at a disadvantage, and their yielding is a giving up of the contest virtually. Dilatation is a condition of permanent incapacity which hypertrophy may compensate, but can never thoroughly remedy, except under most favourable circumstances. Fuller states that he has seen "all the physical signs of dilatation improve materially, and the general symptoms almost wholly disappear after a course of iron has been persisted in for three or four years."[1] This, however, can only be hoped for under the most favourable circumstances. Relief by compensatory hypertrophy is most probably all that we can ordinarily hope for. Rest, as complete as circumstances will permit, is of great service as reducing the heart's labour to a minimum.

Drugs which will induce increased ventricular contraction can alone be expected to influence this condition, and the list of these is as yet a short one. Of digitalis, belladonna, and caffeine, the writer can speak with confidence, having frequently ascertained their action by physiological experiment; while of digitalis an extended clinical experience more and more instances the efficiency.

The condition of over-distention of the muscular fibres of the heart is provided against by nature with the most elaborate care. Behind the left ventricle we have a pulmonic circulation which admits of congestion, and not rarely of hæmoptysis, a most valuable

[1] Diseases of the Chest, 1852, p. 592.

form of temporary relief. The right ventricle, more exposed both by its formation and position, is somewhat protected by its columnæ carneæ and the moderator band of Reil, and, to some extent, occasionally by an imperfect action of the tricuspid, while its auricle is freely endowed with musculi pectinati. There is, too, behind, a congeries of veins, of which the portal veins are destitute of valves, and thus afford an opportunity for evacuation and relief. But in spite of all these complicated arrangements, the most skilled knowledge of how to utilize them, and of our increasing knowledge of agents which increase ventricular contraction, the stretching of the heart's muscular fibre till its elasticity is involved, till it has to contract under obviously disadvantageous circumstances, and even to the more acute danger of over-distention to paralysis, is one of the most serious as well as one of the most common lesions against which the medical practitioner has to fight. The nature of muscular fibre, so to say—the causes which operate on it unfavourably, the means of remedying or obviating the mischief so resulting—are subjects of the gravest importance; and every attempt, however feeble, to elucidate them must add permanently to the sum total of the stock of our knowledge,—knowledge no less desirable for the welfare of the physician than for the wellbeing of the patient.

Part Second.

REVIEWS.

Aneurisma dell' Aorta Ascendente Trattato coll' Elettro-Puntura, Caso Clinico, del Cav Dot. MALACHIA DECRISTOFORIS, Medico Primario dell'Ospitale Maggiore di Milano, etc. Milan: 1870. Pp. 12.

Altre tre Applicazioni d'Ellettro Ago-Puntura Negli Aneurismi dell' Aorta, del Cav Dottor MALACHIA DECRISTOFORIS. Milan: 1870. Pp. 28.

L'Ago-Elettro-Puntura Negli Aneurismi dell' Aorta, dell Dottore DECRISTOFORIS, etc., Presentati dal Dott. G. STRAMBIO al Reale Istituto Lombardo: 4 Agosto 1870. Pp. 11.

TWO of these pamphlets have already appeared during the present year in the *Gazetta Medica Italiana-Lombardia.* They contain a report of operations for the relief of aneurisms, in which the contents of the aneurismal sac were subjected to the coagulating action of electricity. Italian medical literature is much less frequently studied in this country than that of our nearer neighbours, the French and Germans; but there is no question of the value of the communications of Dr Malachia Decristoforis. It is evident that he has mastered every question in the diagnosis, pathology, and treatment of aneurisms. The pamphlets under review are written with admirable fulness, point, and brevity. No consideration of weight has escaped his attention, yet he never throws a sentence away; and as we have not space to reproduce the whole of his remarks, we shall not displace any of them by introducing commentaries of our own. Let us then, without further compliments, proceed to give some account of the matter contained in Dr Decristoforis's little treatises. Stimulated by a case published in the *Gazetta Medica Italiana-Lombardia*,[1] by Dr Ciniselli, he determined, when opportunity should favour him, to try the effects of electricity upon one of those cases of internal aneurism which form the despair of medicine. The first case was named Zamperini Zenofonte, a founder by trade, forty-five years old, tall and strong. He had been off work for six months, owing to wandering pains in the chest, chronic catarrh, and other uneasy symptoms, which increased in intensity until his admission into the hospital at Milan on the 6th of July 1869. There is a minute description of his different symptoms, for which, however, we have no room. In September, the diagnosis of aneurism of the ascending aorta was made, and as the patient was becoming rapidly worse, it was determined, after a consultation with four medical and surgical officers of the hospital, to try the effect of a galvanic current upon the aneurism, which was believed to implicate the extra-pericardiac portion of the aorta.

"On the 17th of November," writes Dr Decristoforis, "when the patient had been for several days in a painful and threatening condition, I performed the operation, assisted by the distinguished electrician Dr Barzano, in presence of the medical and surgical staff of our hospital.

"In the second intercostal space, about 1½ centimetres from the edge of the sternum, I inserted a needle of pure steel to a depth of 4 centimetres; at the distance of 1½ centimetre from the outer side of this needle I inserted a second one to a depth of 4½ centimetres; and at a distance of 1½ centimetre from the second needle, and still on its outer side, I inserted a third needle to the depth of 3½ centimetres.

"According to the method employed by Dr Ciniselli, I connected the three needles with a voltaic pile of thirty pairs, using a saturated solution of chloride of sodium, which gave 24 to 26 degrees of tension by the simple galvanometer. The plates had a breadth of 10 centimetres. The needles were put in connexion with the positive current for seven or eight minutes; connexion was made with the negative current by means of a wet sponge placed upon the skin on the outer side of each needle. After all the needles had received the positive current, and were oxidized, showing a black circle in the transfixed skin, each needle was put in communication with the negative current. These changes were made successively, so that no suspension of the whole current could take place. The galvanic current was kept up continuously for forty-six minutes, during which time every needle had been twice in communication by turns with the positive, and twice with the negative current in every case, for about seven or eight minutes."

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[1] Serie VI., tome i., anno 1868.

The operator felt, after piercing the skin, the resistance of a hard body recoiling against the point of the needle with a pulsatory impulse, and then a sudden diminution of resistance as the needle entered the aneurismal sac.

The patient himself suffered from a burning sensation with deep-felt tremors, but was able to command his feelings. The pulse, which was 80 at the beginning of the operation, fluctuated between 84 and 89. The radial pulse had become reduced in strength, but rallied when the galvanic current was finally suspended.

The free ends of the needles were seen to undulate in an irregular manner under the impulse of the vortex of blood within the aneurism. This was especially the case with the inner and middle needles; but after the galvanic circuit had continued thirty-five minutes, this undulation was succceded by a pendulum movement from above downwards, which was synchronous with the radial pulse. This was regarded as a proof that the blood within the aneurism had become coagulated. It was necessary to use a pair of pincers to remove the needle. A few minute bells of air issued from the bloody serum in two of the punctures. A bladder of ice was put over the part, and allowed to remain for forty-eight hours.

The punctures healed in ten days. Relief was experienced the evening of the operation, and, with the exception of a slight reaction next day, improvement went on without interruption. A month after the operation, the cough and dyspnœa had disappeared, and the acute neuralgic pains diminished to a trifling uneasiness at the region of the scapula. The patient could now sleep on the back, or on either side, and his general health seemed re-established.

The dull space occupied by the aneurism had diminished by two centimetres, and the impulse on the wall of the chest was no longer visible in the erect position. The systolic and diastolic murmurs, which had been more distinct over the aneurism than at the apex of the heart, were replaced by the murmur of the distant cardiac sounds. Zamperini left the hospital on the 30th of December. Though apparently in good health, he was advised to abstain from labour for two months.

He presented himself for observation once a week. On the 6th of February 1870, pulsation again began to be noted on the old site of the aneurism; and on the 8th of March, it was clear that the aneurism had again increased to a dangerous extent. On the 12th of March, Dr Decristoforis had recourse to a second operation, using, however, a new apparatus. The reader will not be at a loss to guess why we describe the details of these experiments; and it must not be forgotten that the least change in the instrument must modify the conditions under which it was made. The apparatus now used was that of Daniell, modified by Dell'Acqua and Dr Barzano. It was a crown of twenty-one cups. The zinc plates were only immersed to two-thirds of their length in the liquid, which consisted of a saturated solution of sulphate of copper. This apparatus had, with the simple galvanometer, a strength of 10 degrees at the outset, and of 6 degrees kept up during the rest of the application. During this latter period, its strength answered to 55 degrees on the multiplier of Dell'Acqua.

To ascertain the chemical intensity of the current, a voltameter was used, having a bell of the diameter of thirty-three millimetres, with two platinum threads of one millimetre in thickness, and twenty-two millimetres from one another. The water was acidulated by about one-thirtieth of its weight of the sulphuric acid of commerce, and the galvanic current being passed through it, three cubic centimetres of oxygen and hydrogen were obtained.

This new apparatus seemed to have caused more pain to the patient. The needles were inserted a little to the external side of the old cicatrices, and the current kept up for about thirty minutes. Things went on much the same as in the first application. Twenty-four hours after there was some distress in respiration, the pulse became small and rose to a hundred, and there was a sharp pain at the right mammary region. A cathartic was given, and some symptoms of catarrh soothed by the inspiration of aqueous vapour. The pulsation of the tumour ceased for ten days, after which it began to appear on the outer side of the aneurism, precisely where it had already returned after the first operation. This time the tumour did not seem to be diminished in size. Nevertheless, as Zamperini felt himself again free from almost all uneasy symptoms, he returned to the foundry, using the hammer, and carrying heavy weights. After three months he was again back to the hospital labouring under partial pleurisy in the left side and pulmonary congestion of the right one, and with the symptoms of an aneurism somewhat higher up, extending as high as the clavicle. There was, however, no increased pulsation in the old site over the second intercostal space. We learn nothing further of this man, who appears to have been much in the same condition last August.

The second case was a man named Aspesi, who presented himself at the hospital with a false aneurism, about the size of a man's fist, under the pectoral muscles on the left side, near the manubrium of the sternum. Dr Decristoforis determined to try the effects of his operation upon this desperate case. He used the same apparatus as in the first operation on Zamperini. Four needles were fixed in the tumour, the upper to the depth of 6 centimetres, the outer, 5 centimetres; the inner, 4, and the lower one, 5½ centimetres. The current was kept up for fifty-six minutes. During the operation the movements of two of the needles indicated a coagulation of the blood; and after it was over there was noted an appreciable induration and diminution of pulsation in the tumour. But the beneficial results soon passed away. The tumour again began to enlarge, and finally burst, though not at the point where any of the needles had been inserted. The patient died of hæmorrhage in two days.

On dissection there was found a true aneurism, extending from the origin of the aorta to that of the left subclavian. The dilated trunk was firmly adherent to the inner surface of the thoracic wall on the left side, from the second rib to the fifth. This adhesion nearly corresponded to the extent of the false aneurism. The intercostal tissues were destroyed, the costal cartilages remaining. The anterior boundaries of the false aneurism were constituted by the skin, the areolar tissue, and the pectoralis major muscle. This cavity was found to contain a tenacious clot of no recent origin, with several other looser coagulations, probably produced by the action of the galvanic current.

The next case was a man named Toppi Aurelio, a weaver and organist. Like Aspesi, he had a pulsating tumour on the left wall of the thorax, which had made its way through the intercostal spaces. It was about the size of a small nut. The apparatus used was that of Daniell, as already described. Three needles were fixed in the tumour to the depth of 5¼, of 6, and of 4¾ centimetres. There was every proof that consolidation of the contents of the pouch was effected by the galvanic current, which lasted thirty minutes. Toppi felt so much relieved by this operation, that seven days after he insisted on leaving the hospital. After being eleven days in his own house, he died suddenly with symptoms of internal hæmorrhage. On examination there was found an enormous aneurism, implicating the whole aorta up to the origin of the left subclavian. There was an effusion of blood in the mediastina from a wide rupture in the upper and posterior part of the aneurismal sac, at a distance from the place where the needles had entered.

In aneurisms within the great visceral cavities, the physician tries to moderate the force of the circulating current, and to promote coagulation in the aneurismal sac; but he has no means of checking the degeneration of the arterial coats which is so often the predisposing cause of the arterial dilatation. It would appear that, as far as these experiments go, we have in galvanism an agent which can be so directed as to produce coagulation, even in an aneurism of the aorta, without any accident. Dr Decristoforis observes that sacculated aneurisms offer more chance of a success than fusiform ones. It would also appear that if the first application of galvanism fails to produce a coagulum sufficiently tenacious to arrest the continuous dilating impulse of the circulating current, the operation may be with safety repeated, so that even when a cure cannot be obtained the fatal issue may be considerably retarded. The case of Zamperini well illustrates the necessity of careful regimen, and of abstaining from laborious exertion of the muscles for an unlimited time after the operation.

Of course it is necessary that a very exact diagnosis should be made before having recourse to acupuncture; and great care should be taken to measure the intensity of the galvanic current. Too strong a current acts upon the tissues and decomposes the blood, which, on account of the salts it contains, is a good conductor of electricity. The author points out that in some cases where this operation has been followed by fatal results, this has been owing to over-powerful currents causing deep mortification, followed by hæmorrhage, inflammation of the aneurismal coats and of the surrounding parts. On the other hand, too weak a current producing small and non-adhesive clots might be the cause of fatal embolisms.

Dr Decristoforis remarks that the coagulation of albumen and fibrin is accomplished by the negative as well as the positive current; but with the latter it takes place more promptly, and in the form of tenacious and adhesive clots which gather firmly round the needle; while the clots around the needle, which represents the negative pole, are transparent, gelatinous, and not so adhesive. This difference, Dr Decristoforis thinks, is owing to the production of acids at the positive pole, which have more power to coagulate the blood than the alkalies which collect at the negative pole. At the same time he remarks that a good coagulum may be obtained by a negative current, though a longer time is needed. We may here remark, that there are reasons for believing that the electric current coming from the positive pole is more powerful than that coming from the negative pole. This may be demonstrated by its superior decomposing power upon water.

In so momentous a question as this, we require more cases and longer time to watch them. But it would seem that this operation, especially in thoracic aneurisms, promises more than any other surgical operation, such as the injection of coagulating fluids into the aneurismal sac, and brings us much nearer a cure than those indirect attempts to cause coagulation by means of rigid abstinence or the use of medicines absorbed into the blood through the stomach. Little would be gained by discussing this part of the question at length, since it is neither likely nor desirable that it should be taken up by those who are unable to nicely balance the comparative advantage of different methods of treatment.

The surgeon ought also to consider whether there may not be cases in which electro-acupuncture may not conveniently replace deligation.

Lectures on some Subjects connected with Practical Pathology and Surgery. By HENRY LEE, F.R.C.S., Surgeon to St George's Hospital, etc. In two volumes. Third Edition. London: John Churchill and Sons: 1870.

THIS work, which claims on its title-page to be a third edition, is described in the preface as having been in great part rewritten. It contains the substance of the second edition of two separate volumes at present out of print, together with several lectures now published for the first time. From its composite nature, we may suppose that it consists of those articles and volumes which the author himself thinks his best performances; from its having been revised and rewritten, it may deserve a more extended notice than we generally accord to third editions.

The first four chapters are continuous, and treat of purulent infection or suppurative fever and its relation to phlebitis, and the nature and treatment of phlebitis. They contain rather a melange of material unskilfully put together, with so much verbosity and indistinctness that it is very hard to know what the author means us to learn from him. Beginning with the usual fine writing about pyæmia, its "defeating all the care and skill of the operator," the "fate of the patient being commonly sealed," whatever that may mean, he avails himself of some MS. notes in his possession of a lecture of Mr Abernethy's in 1820–1 on sympathetic irritative fever. We have fairly tried to find out what lesson Mr Lee would draw from these notes; but if there is any to be drawn, we console ourselves for the non-possession of MS. notes of Mr Abernethy's course in 1820–1, by referring to the pages of the *Lancet* for Oct. 9, 1824, in which, in almost identical words, Mr Abernethy describes this fever. The resemblance is so very close, that Mr Abernethy must either have had accurate written lectures, which the reporter to the *Lancet* in a note implies he had not, or the *Lancet* must have copied Mr Lee's MS. notes of 1820–1, or Mr Lee's MS. friend must have copied the *Lancet*.

After a long series of quotations from great names, Ambrose Paré, Cruveilhier, John Hunter, Mr Lee, and Virchow, we find a gleam of light as to the author's opinions in p. 17 in the statement, "As has been said already, phlebitis has an undoubted existence." Then in p. 20 we are told that "it is owing to Virchow that the morbid phenomena belonging to the pyæmial group of diseases have been so acutely analyzed of late years; and he has attempted a reconstruction of their pathology, discarding the term phlebitis altogether." What is now to be done? what are we to think?

The second chapter is on the pathology of phlebitis. In it Mr Lee discusses the possibility of pyæmic poisoning being in some cases the result of *vitiated fluids* entering the veins directly. He believes that many such fluids may enter the veins without leaving any trace of their course, but those which do leave a trace may be of two kinds:—

1. Those which, on admixture with the blood, determine its coagulation.

2. Those which, upon admixture with the blood, produce its decomposition.

The distinction is very well drawn between these two kinds, and experiments are given illustrating the rapid effects produced by the injection of fetid fluids into the blood of animals. The quantities injected were so enormous, however (two and a half ounces having been used in one experiment by Gaspard, on a dog), as to lessen the value of the results. In the third chapter the symptoms are again gone over, and their relation to the blood-poisoning explained. The fourth chapter treats of the prevention of blood-poisoning, and specially describes a method of closing the canal of an inflamed superficial vein, and preventing the entrance of its contents into the circulation. Four cases are given, in three of which this method was followed by success. This method, which is already well known as a cure for varicocele, introduced by Mr Lee, consists in passing two needles under the veins, about one inch apart, compressing the veins against them by an 8-ligature, and then dividing the veins subcutaneously between the needles.

In the three succeeding chapters or lectures, we find a very good account of varicose veins and varicocele, with Mr Lee's own operations for their cure and its results. Our own experience agrees with that of Mr Lee, that this operation is simple, safe, and efficacious for a time, though, like all other operations for varix, disappointing in its ultimate results from recurrence of the disease.

The next lecture is the one on the closure of arteries, which is in the fiftieth volume of the Medico-Chirurgical Transactions of London. The pathology of certain cases of what the author calls "chronic local multiple abscesses," and which he associates with disease of the nutrient artery of the part, seem not very well made out, as most of the six cases on which he founds his description seem in appearance and result of treatment very closely to resemble the very common multiple cellular tissue ulcers of secondary or tertiary syphilis.

The remaining portion of this volume is almost identical with the work on Diseases of the Veins and Hæmorrhoidal Tumours, of which the second edition appeared in 1866. Indeed, the verbal identity is sometimes carried too far, as where, in page 172 of this work, we find that Mr Lee states, "During the last eighteen years I have applied the strong nitric acid to a variety of hæmorrhoidal tumours;" while in 1866 he could still make the same statement as to eighteen years. Can it be possible that Mr Lee does not wish to acknowledge he is now four years older and more experienced than he was in 1866? Indeed, a more slavish reprint we have never gone over.

The last two lectures seem to be new, but there is nothing in either which could possibly justify their publication; they are the sort of things which are given every day without notice in any ordinary clinical course of lectures on surgery, but absolutely valueless for after reading or preservation.

The second volume contains the author's views on syphilis, already pretty well known; and as it is only a few months since he had an opportunity of publishing them pretty widely in Holmes's Dictionary, we hardly think that the present reprint requires a notice to itself.

We can easily understand Mr Lee's wish to have his works collected in two imposing volumes; but we do not think that the name on the outside fairly expresses the contents of the work, which is, to all intents and purposes, a simple reprint of his previously published volumes, the new material being small in amount and still less in value.

Lectures on Clinical Medicine, delivered at the Hotel Dieu, Paris. By A. TROUSSEAU. Vol. III. Translated from the edition of 1860 by JOHN ROSE CORMACK, M.D. Edin., F.R.S.E. The New Sydenham Society. London: 1870.

Clinical Lectures on Pulmonary Consumption. By FELIX VON NIEMEYER, M.D., etc. Translated by C. BÆUMLER, M.D., etc. The New Sydenham Society. London: 1870.

WE place these two works together, not because they are related in regard to subject, because they are not so, except in so far as they both belong to the domain of practical medicine, but because they are both issued by a society which during the last twelve years has done good service in the cause of the advancement of medical science by publishing, at a cheap rate, very excellent translations of the best foreign works in every department of science. These works have not been selected by caprice or whim, but have been chosen by a body of practical physicians because of their important bearing upon medical and surgical practice; and in every instance they represent the most advanced views prevalent on the subject of which they treat. During the past eleven years—for the twelfth is not yet over—no fewer than thirty-five volumes of important works on medicine have been issued, besides nine fasciculi of most beautiful plates of skin diseases, most of them after Hebra, and which alone are worth all the money subscribed, and could not otherwise be procured for even that sum. It is a society which deserves well of the profession; it has hitherto acted prudently and efficiently, and ought to be supported by every member of the profession. He who during the past eleven years has made himself master of the works issued by this society is no mean authority in medicine;

and even he who only makes use of them as works of reference will find that they afford him reliable information whether on points of science or of practice. We have made these few remarks because we think the society scarcely so well supported as it deserves, and because we are sure this can only be from its merits not being sufficiently well known, as the subscription—only one guinea annually—is surely within the reach of every medical practitioner. We may add that each subscriber benefits not only himself, but his brethren, because the Society of course desire no profits, and increased subscriptions only lead to more numerous publications.

The first work mentioned above, Trousseau's Clinical Lectures, is so well known as a standard authority, that it is almost superfluous to say more about it; the translation is well executed, and is very free from the obscurities entailed by an adherence to foreign idioms. The accomplished translator, Dr Cormack, was the founder and original editor of this Journal, or at least of that half of it represented by the quondam "Monthly," which, under his able guidance, long held its own, and disputed for pre-eminence with the other half, "the Edinburgh Medical and Surgical." And it says much for the energy of himself and his opponent, Dr Craigie, as well as for the vitality of medical science, and of the Scotch school in their day, that two such well-known journals were enabled to hold their own so ably, not only against each other, but against all others. At present, Dr Cormack, having not long since selected Paris as a field for practice, has cast in his lot with his adopted fellow-citizens, and is now enduring all the unwonted hardships of a siege. We are glad to say that, despite the lapse of years, his energy does not fail him; and in one of the latest communications from him—per balloon—he talks playfully of horse-flesh as siege venison, which eats well when accompanied by siege sauce.

In this volume of Trousseau's work, perhaps the chapters on ozæna and paracentesis of the chest are the most noteworthy; and we specially mention ozæna, because it it a horribly troublesome affection, and because we have repeated occasion to verify the good results to be obtained by an adoption of the treatment recommended in this work. We could readily give the prescriptions which have proved so useful, but we think it better to refer to the work itself, as mere prescriptions are of little avail and of no scientific value without due regard to the principles upon which they are used, which can only be learned by a careful study of the whole chapter. For in therapeutics the two matters most essential to success are, first, the principle of selection, and second, the dose. The first can only be thoroughly understood by a careful study of the works of those who have first propounded the remedy. The second may be absolute in all cases—that is, it must be given in every case to saturation of the system, as is so remarkably the case in the use of iron in erysipelas; or it may be relative, and is then to be modified in each instance by a due consideration of the properties of the drug, coupled with an application of the principle of selection to the needs of the case in hand. It is only by acting thus that we can practise medicine in a truly philosophic manner; to act otherwise is to degrade ourselves to the position of legalised charlatans, with a set of nostrums worthless as such, and only useful when by chance their employment coincides with those conditions in which their curative efficacy becomes developed.

The operation of paracentesis thoracis is one which, though practised so early as the days of Hippocrates, has only attained a settled place in the rôle of medical therapeutics within the last thirty years. The Germans, and amongst them the Vienna school, as represented by Shuh and Skoda, were the first to recognise its value and importance; and while the British school still opposed the operation, France, in the person of Trousseau himself, led the way to a successful realization of the benefits of this procedure, and thus the credit of an operation which has been so warmly adopted and so successfully practised in the New World, that modern writers seem almost inclined to give the whole praise due to its adoption to American surgeons, really belongs to German and French medical men. The historical part of this chapter is well worthy of perusal, and we cordially recommend the whole work as eminently practical in character, while the treatment of each subject is also sufficiently suggestive to form the basis of further advances, qualities which are the true criterion of the value of clinical contributions. Niemeyer's work is also one eminently suggestive in character, not only as regards pathology, but also as regards treatment and prevention. There is no work on the treatment of phthisis in the English language so advanced in its pathology—it leaves the crude theories of Laennec and his followers far in the rear, and, by showing the essential dependence of tubercle on preceding inflammatory processes, it shows also how we may ward off this intractable disease from our patients; and, without propounding any new or infallible cure for phthisis, it shows how we may most usefully employ the remedies at hand for its prevention. He who has mastered the seventy pages of this brochure may regard himself as well informed as to the modern pathology and modern treatment of this important disease.

An Introduction to the Osteology of the Mammalia. By WM. HENRY FLOWER, F.R.S., etc. London: Macmillan and Co.: 1870.

THIS work contains the substance of a course of lectures on Comparative Anatomy, delivered before the Royal College of Surgeons of England. As may be readily supposed, coming from the pen of an anatomist of such eminence, the work is excellent, and adds one more to the many good works lately published on the various branches of zoology and comparative anatomy.

To the student already familiar with the details of human osteology, and desirous of studying that of the lower mammalia, this work will at once commend itself, although even he will probably experience some difficulty in making his way through a subject necessarily dry, but rendered more so, in the present work, by the purely descriptive style of the author. Had the author not confined himself so closely to anatomical facts, but introduced a little physiological knowledge throughout the work, he would, we venture to think, have rendered the book more readable, and impressed the facts more permanently on the mind of the student. A short paragraph, devoted to demonstrating the adaptation of the anterior limb of the mole to its fossorial habits, would have gone far to impress the anatomical configuration of that member on the memory of the reader.

At the commencement of each chapter, a short description is given of the bones to be considered, as seen in the human subject; after which, the various modifications to which they are subject in the lower mammals, beginning with the anthropoid apes and terminating with the monotremes, are described at length. The descriptions are throughout clear and distinct, and we would especially notice the section devoted to the consideration of the skull of the dog, as a model of perspicuity and conciseness in the description of the most difficult part of the skeleton. A chapter devoted to the homologies of the anterior and posterior limbs concludes the volume.

We cannot, however, omit to particularize several statements which certainly admit of doubt. Thus at page 87, referring to the articulation of the first rib with the vertebral column, the author says,—"The first rib is articulated by its head to the hinder part of the seventh cervical, and front part of the first thoracic vertebra." Now, although this does occasionally occur in the human subject, the articulation of the first rib with the seventh cervical vertebra is the exception and not the rule; and even among the lower animals, in which this prevails to a greater extent than in man, we are not sure that the statement is universally correct; at least in several skeletons which we have examined, the articulation of the first rib with the vertebral column was confined to the first dorsal vertebra. Again, at page 246, we are astonished to find this statement—"In the pinnipedia, the humerus has a remarkably prominent deltoid ridge and *no supra-condylar foramen.*" Surely Mr Flower has never examined the humerus of the common seal (*phoca vitulina*) after maceration; and had he ever dissected the anterior limb of that animal in its recent state, he would have found that although the foramen in question is present, the brachial artery alone passes through it, but the median nerve does not do so—a fact at variance with the author's general statement at page 241, that when the foramen is present, both artery and nerve pass through it.

While pointing out these errors, which appear the more extraordinary in contrast with the general excellence of the work, we cannot but express our opinion that the book is, in many respects, a valuable contribution to the literature of comparative anatomy.

A Sketch of the Life and Writings of Robert Knox the Anatomist. By his Pupil and Colleague, HENRY LONSDALE. London: Macmillan and Co.: 1870. Pp. 410.

NEARLY thirty years have elapsed since Robert Knox delivered his last lecture on Anatomy in Edinburgh. Since that time a whole generation has been swept away by time's destroying flood, and those who then crowded his benches are now elderly men who look with equanimity at least, if not calmness, upon the phantasmagoria of time; yet if there is one thing still fitted to excite in their breasts the feeling of youthful enthusiasm, it is the name of Robert Knox, and the recollection of his spirit-stirring lectures. Again they see the well-remembered lecture-room crowded from its lowest to its topmost bench,—again they see the spectacled bald head and somewhat overdressed athletic figure emerge from behind the green baize door, and, amid a storm of applause, Knox selects from among the relics of humanity before him the subject of his prelection. Amid a deathlike silence every intonation of his sweet and somewhat low-pitched voice falls bell-like on the ear, and each apt illustration is enforced by the quiet gesticulation of his outstretched arm, the pauses enforced by the applause wrung by his points from an entranced audience being filled up by a sailor-like hitching of his trouser-band and a readjustment of his spectacles. Carried away by the remembrance, full of the loving memory of their old teacher, who, as a teacher, has had no second in our day, they are almost tempted to exclaim—

> "Give me but one hour of—KNOX;
> Let me see him ere I die."

Alas! a wanderer from his home, a writer of newspaper articles, an accoucheur in Hackney, and, worse than all, a popular lecturer, and all for bare bread, Knox, the great anatomist, the unapproachable lecturer, forced from the path of scientific inquiry by the *res angustæ domi*, passed to his rest eight years ago. No more we shall hear his bland harmonious voice, or be impressed by his earnest and persuasive manner; his very name is forgotten, or only remembered, except by his pupils, in connexion with the vilest scum of the earth, with whose base practices he at one time became entangled.

Why should this be? Not because of Burke and Hare, *et hoc genus omne;* his connexion with them was long since cleared up and shown to be blameless; and a similar connexion has not prevented his then assistant, Sir William Fergusson, from attaining the highest professional honours or the greatest public esteem. Those who wish to know how the mighty fell have but to read this book to see that Knox sank to the lowest ebb of professional life, and passed away unhonoured by his compeers, because, in spite of transcendent abilities, he was wanting in professional dignity and truthfulness, and utterly deficient in reverence for all that is most sacred to man. Written with a bias in Knox's favour, as we may well suppose of a man who was a loving pupil and a trusted assistant, this book yet contains ample evidence that Knox was not unjustly punished for trampling under foot all that we are taught to hold most dear. We are far from wishing to judge Knox; we love his memory too well; and we also hope that we are too catholic and too well versed in what is due both to man and to his Maker to desire to do so; but for these very reasons we could wish that his biographer had told us more of the great anatomist and the eloquent lecturer, and left in abeyance the many objectionable points of his character which we would wish to forget. So guided, we might have wept tears of sorrow over our lost teacher, and, in our loving memory of the man, have forgotten what was objectionable in his character.

And yet, for want of a better, this biography of Knox will be eagerly read by all his old pupils, who will hardly need its pages to enable them to recall the palmy days of old; who will smile as they think how like Knox was his reply to John Reid, who was anxious to know if Knox did not think it extraordinary that a shark could live without brains,—"Not in the least extraordinary; if you go over any morning to the Parliament House you will see a great number of live sharks walking about without any brains whatever;" and who, in the numberless egotistical traits recorded, will see traces of the man capable of thus apostrophizing a boy in a back shop on the South Bridge who was aiding him in selecting a hat,—"Boy, boy, you little know how large a brain that hat will cover;" or of saying to a friend whom he met on the street shortly after Dr Abercrombie's death, "All great men die of heart complaint; I myself have often sensations;" the sentence being appropriately concluded by significantly pointing his forefinger to his own breast.

We well remember the introductory lecture to his course on Physiology in Nicolson Street, when he kept his audience in roars of laughter from beginning to end by his [illegible] and appropriate illustrations of the method of observation pursued by modern physiologists, from the one who hatched goose eggs and was probably a greater goose than she who laid them, to him who lay three weeks on the seashore watching the growth of a sponge. And yet, with all these absurdities, Knox was not only a great anatomist, but a great physiologist, who took his lessons mainly from man, and who claimed that abundant opportunities were to be found, if sought for, of observing the human organs under circumstances most suitable for eliciting their functions, without having recourse to cruel vivisections on animals, which he always condemned; while his "Lectures on Race," and on its influence in promoting the civilisation of man, and regulating the future balance of power in Europe, prove him to have been a far-seeing, an almost prophetic ethnologist, and are well worth studying in these days, when his views are bidding fair to be accomplished. With all his faults, Knox was a man never to be forgotten, either by those interested in the advancement of anatomical science or by the student of history, while to his pupils he was and must always be

"——nox
Semper."

The Satires of Horace, translated into English Metre. By ANDREW WOOD, M.D., F.R.S.E. Edinburgh: W. P. Nimmo: 1870. Pp. 169.

As medical journalists, hardly able to keep pace with the rapid advances in our science, and wholly incapable of doing justice to all the many works belonging to it which claim our attention, we feel it would be out of place to attempt any criticism of a book such as this, which strictly belongs to general literature. As the work, however, of a well-known and much-beloved physician, and a member of our General Medical Council to boot, we think right to direct attention to it as a further proof, if any were required, that our more purely professional studies do not incapacitate us for taking pleasure in the more luxuriant fields of general literature; that a good doctor is not of necessity, and certainly ought not to be, a mere barbarian to the outer world; and that our motto, "*nec sinit esse feros,*" is no mere idle boast, but the rule of our lives, though only now and then the busy members of our profession have sufficient force of character to exhibit it practically to the world. "Gather up the fragments," has been Dr Wood's motto in this his labour of love; and, whether in the train or in the study, he seems to have kept it unceasingly before him. No better example of his diligence could be instanced than that little insect which a greater than he has held up as man's exemplar in wise and prudent toil; and as the few words in which Horace has recommended this little creature's wise industry supply at once a fair sample of Dr Wood's skill as a translator, and a good moral for us all, we cannot do better than conclude our notice with them:—

> The ant—the example's fair—the tiny ant—
> Whilst with its mouth it drags whate'er it can
> To add unto its heap, doth toil and pant
> Unceasingly: it works upon a plan,
> Knowing and careful of what is to come;
> And when Aquarius the waning year
> Makes darkly sad, it creeps no more from home,
> But wisely uses its well-gathered gear.

Those who know the original of this:—"*Sicut parvula, nam exemplo est, magni formica laboris,*" will see at once the force and truthfulness of the translation, and will, we hope also, thank us for the moral conveyed.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION L.—MEETING I.

Wednesday, 16*th November* 1870.—Dr BENNETT, *President*, in the Chair.

I. *Mr Annandale* exhibited a PREPARATION showing the result of an EXCISION OF THE HIP-JOINT fourteen months after the operation. The patient recovered from the operation so as to be able to move about on crutches, but suppuration took place in connexion with the bones of the pelvis, and from the effects of this he gradually sank and died. The end of the femur had become rounded off, and was connected to the dorsum of the ilium by fibrous bands and areolar tissue.

II. A KNEE-JOINT illustrating the return of disease in the lower end of the femur, after an excision of the articulation for a scrofulous affection. The disease was too extensive to admit of a second excision, so amputation through the thigh was successfully performed.

III. Two examples of DISEASE OF THE OS CALCIS, one illustrating a tubercular affection, and the other internal necrosis of the bone. In both instances he had excised the os calcis alone, as the other portions of the foot were healthy. The periosteum was carefully preserved in both cases.

IV. A FIBRO-CYSTIC TUMOUR of the lower jaw removed by him. The tumour affected the bone from the first bicuspid tooth on the right side to a little above the corresponding angle. It was removed by sawing through the bone a little to the right of the sympyhsis, and disarticulating it on the same side.

V. A LARYNX, TRACHEA, and BRONCHI, from a fatal case of croup. He had performed tracheotomy, with the result of giving complete relief to the symptoms for about forty-eight hours, when the child died somewhat suddenly. On post-mortem examination, the larynx, trachea, and bronchi were found to be lined with false membrane, which was only slightly adherent to the mucous membrane at one or two points.

VI. A large EPITHELIAL CANCER, which he had removed from the scalp of a female patient. A section of the tumour showed that it had originated in a cyst or wen.

VII. An ELBOW-JOINT removed by excision from a patient three years of age. The operation was performed on account of scrofulous disease of the joint. Suppuration of the joint had existed for some time, and was acting as a serious source of irritation, and injuring the child's health.

VIII. *Dr Cadell* showed a CLUB-FOOT APPARATUS he had seen successfully used in the Lyons hospitals; the chief advantage over the English appliance for the same disease being in the introduction of continuous elastic traction, by means of caoutchouc rings fastened to the straps of the boots. Another improvement was, a leather anklet, with a strap attached, which passed through the back of the boot close to the sole, and, by this means, could bring down the heel into perfect apposition with the boot, which is a great desideratum.

IX. He also brought under notice an INSTRUMENT for the cure of FIBROUS ANKYLOSIS OF THE KNEE-JOINT, by continuous elastic tension, on the same principle as the club-foot apparatus. The treatment of the different kinds of talipes and fibrous ankyloses of joints by this method has been in use in Lyons for the last two years at least.

X. *Dr Chiene* then read his paper on a case of OBTURATOR HERNIA, which will appear in an early number of this journal. (The case was a subject in the University Anatomical Rooms—the death returned as from ileus.)

Dr Joseph Bell thanked the author for his interesting and model paper—brief, yet to the point. He remarked that, if a patient was not too fat or too muscular, the diagnosis of obturator hernia was by no means an impossibility, and that every case attaining the size of a pigeon's egg ought, in such instances, to present symptoms which would lead any surgeon to cut down upon it. He also stated that pain or tenderness, and dragging over the seat of one obturator foramen, coupled with the symptoms of ileus, ought to lead to the examination of the part by means of incision, even in the absence of any perceptible tumour; while he also believed that recent successes in opening the abdomen in ovariotomy, facilitated and rendered both easy and innocuous as they now were by the use of ether or chloroform and carbolic acid, ought to lead us to open the abdomen in every case of obstinate ileus, in the hope of being able thus to ascertain and relieve the obstruction. Even should we fail in our efforts, the position of the patient would not be impaired; and, in many cases, he believed we would be successful. It was an operation which he himself was quite prepared to carry out.[1]

Dr Handyside asked if anything unusual had been observed in regard to the origin of the levator ani muscle in this case. He believed that, in almost every case of hernia, there was what might be termed an anatomical predisposition, and he thought it possible that, in this instance, a low origin of the levator ani muscle might have favoured the protrusion.

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[1] Since this discussion, Mr Annandale has performed this operation in a case of ileus; the obstruction was readily found and removed—unfortunately, at too late a period to be successful.—ED. *Ed. Med. Jour.*

Dr Matthews Duncan remarked that this was exactly the point to which he wished to direct attention. This woman had formerly suffered from femoral hernia; how did it happen that now it was the obturator foramen that was the weakest point, and not the femoral canal? There must be some anatomical cause for this. He wished also to know if the woman had displayed any other proof of defective retentive power in the abdomen, in the existence of piles or prolapsus uteri.

Mr Annandale said that the diagnosis of obscure obturator hernia was often simplified by the existence of pain down the inside of the thigh, produced by the stretching of the obturator nerve over the tumour.

The President said that the history of this interesting case was somewhat defective, but the remarks that had been made were most interesting, as showing that surgeons were now prepared for a more thorough exploration of such cases than they were some years ago. He had then in vain urged such an operative exploration as Dr Bell had recommended upon a distinguished surgeon in relation to a case of ileus, when he was met by the statement, that such an operation was contrary to the principles of surgery. He was glad that these principles had undergone so wholesome a change. He held that in every case of obstinate obstruction of the bowels, a tumour ought carefully to be sought for at the ordinary outlets of hernia, and cut down upon if found; and that, failing that, the only rational hope of saving the patient's life must be based upon the results of opening the abdomen.

Dr Chiene replied that he quite agreed with Dr Bell's remarks. A few years ago he had seen another subject, in whom death had also been caused by ileus, and the cause of this ileus was found to be the slipping of a knuckle of ileum through a loop formed by the adhesion of a diverticulum to the mesentery, which could have been most easily pulled out and relieved. In all such cases, however, it was necessary for the successful result of operative procedure, that the patient should be seen early; a late operation could only hasten the end by favouring the escape of fæces from the gangrenous intestines into the abdominal cavity. In the case under consideration, the woman had been ill several days, and was only seen a few hours before death; operation in her case would therefore have been worse than useless. He had not examined as to the insertion of the levator ani, not being aware of its importance in such cases. The woman, however, had neither prolapsus uteri nor piles. There was no particular pain down the thigh observed in this case.

Dr Grainger Stewart observed that, when pathologist to the Royal Infirmary, he had been much struck by the frequency with which life might have been saved by operation in cases of death from ileus; and he possessed many preparations illustrative of this point.

Dr Gordon stated that recently he had a case of ileus, in which, after death, the only appearance found was invagination of the intestines to a small extent, which would have been readily pulled out.

XI. *Dr Grainger Stewart* exhibited a very remarkable example of DUCHENNE'S PSEUDO-HYPERTROPHIC PARALYSIS in a young man of 25. This affection had been most commonly observed in early childhood, but it was known that, when once it commenced, it was sometimes temporarily arrested only to recommence at a future period. This young man remembered being, as a child, unable to play like others; now, he presented all the usual symptoms; he walked imperfectly and straddled in his gait, having considerable anterior curvature in his lumbo-sacral region, and great hypertrophy of some of the muscles of the back, of the glutæi, and of the muscles of the thighs and calf, particularly the gastrocnemii.

XII. *Dr Stewart* also exhibited a case of ANEURISM OF THE AORTA, implicating in its pressure the recurrent laryngeal, the œsophagus, the right bronchus, and the sympathetic on the right side, which was irritated, but not paralyzed; the right pupil was consequently dilated and not contracted.

XIII. *Dr Argyll Robertson* next read his paper on ALBUMINURIC RETINITIS, which, founding on several interesting cases observed by himself, he declared to be a fatty degeneration succeeding a previous inflammatory exudation; it was a late, and not an early, symptom of albuminuria. The paper itself will appear in an early number of this Journal.

Dr Matthews Duncan regarded this as a most interesting communication, illustrating the light which ophthalmoscopic observation was capable of throwing upon other diseases; and it exhibited a very important advance in the science of medicine. In his own department, for instance, not many years ago, amaurosis was regarded as a symptom of pregnancy or a complication of diseases following parturition; more recently Drs Ashwell and Mackenzie of Glasgow had described the amaurosis of parturient and nursing women as a retinitis; but this was only a theory, as they had no ophthalmoscope to give precision to their diagnosis. Now it was known that in many cases in which this symptom occurred albuminuria was also present, and he felt very strongly the importance of having the whole subject of amaurosis in parturient women carefully gone over so as to elicit its true cause; and this seemed the more necessary, since Von Graefe had said that in thirty out of thirty-two cases it was not merely symptomatic but produced by actual disease. As illustrative of this subject, an old pupil, Mr Hodges, now Resident Physician in the Midland Counties Eye Hospital, Birmingham, had recently written to him an account of a female, aged 52, who had produced twenty-three children at the full time in single births, so that she had passed eighteen years, or more than one third of her life, in a state of pregnancy. Her last child was born when she was 50; she still menstruated, but irregularly. She was a strong, tall woman, quite a typical Warwickshire woman, without a gray hair in her head; but she had a detachment of part of the retina in one eye, which no doubt was dependent on her many parturitions.

Dr Grainger Stewart observed that he had made many observations of such cases similar to those which Dr Robertson had described, that he regarded Traube's explanation of the appearances as the result of hæmorrhage dependent upon cardiac hypertrophy as much less likely to be true than Dr Robertson's. It was somewhat singular that this form of retinitis should be mainly confined to the contracting kidney, and so rarely associated with waxy degeneration. In some eyes, which during life had exhibited distinctly the appearances described, and which after death had been opened by Dr Pettigrew, the present Pathologist to the Infirmary, and himself, he had been much struck by the apparently healthy appearance of the retina to naked-eye observation; and he could not doubt but that in many cases of uræmic convulsions, where no alteration of the cerebral substance could be detected, such might nevertheless exist, and might prove one at least of the many various causes of this disorder. In illustration of the value of eye symptoms as a diagnostic mark of contracting kidney, he stated that only last Sunday he had been consulted by a strong, healthy-looking man, who, during the last six or eight months, had observed a gradual increasing dimness of vision, and on examination, his urine was found to be albuminous; and, from this and the other symptoms, he had no doubt the patient was labouring under the contracting form of Bright's disease, already far advanced. With regard to the general question of the utility of the ophthalmoscope in the diagnosis of diseases, and especially of diseases of the brain, he referred to the importance of ophthalmoscopic observations being made in as many cases of such diseases as possible. He had found it of great value in some forms of disease, and was anxious that by extended observations the exact amount of information to be derived from it should be ascertained. He stated that last summer he had a case which seemed to show that ophthalmoscopic evidence was not always reliable. The patient was a servant, presenting symptoms which might have been those of enteric fever or of tubercular meningitis. It is known that German observers have stated, that in the latter disease tubercle is always to be detected in the retina. In this case the ophthalmoscope revealed nothing anormal, yet after death tubercular meningitis was found to have existed.

The President expressed his high opinion of the value of the paper, yet he missed in it that accurate information of the histological condition of the tissues which was desirable, and without which the history of the cases was incomplete. Quite recently he had a patient paralyzed in both hands and both feet, indicating a profound lesion of the spinal cord; after a few days' illness he became comatose, and died. On examination, the brain and its membranes were found healthy, but opposite the fourth cervical vertebra a limited portion of the gray matter of the cord was found to be in a state of molecular degeneration, not exudative in character, but arising from defective nutrition. The multipolar cells were enlarged and opaque from infiltration with yellowish granular matter. A correct histological examination was necessary in every case to ascertain the precise nature of a fatty degeneration as inflammatory or otherwise, and he hoped that Dr Robertson would supply this important observation in regard to the cases related. In pregnant and parturient women, fatty degeneration played a most important part; it was the mode in which breaking down and absorption of the hypertrophied uterine tissue took place, and it was also the mode by which the mammary secretion was prepared and elaborated. That fatty transformations of tissue thereupon should frequently occur in such cases, if the excretory functions were interfered with, was not surprising. He regarded the term amyloid as a misnomer; the substance so termed was not in the least like starch, while it did resemble bees-wax both in consistency, translucency, and appearance; waxy was therefore a much more applicable term. It never became blue on the addition of iodine, but always assumed a shade of red or brown.

Dr Robertson replied that the amaurosis of pregnant women might depend on simple inflammation of the retina, on atrophy, or on anæmia of the optic nerves, while in other cases it might be associated with albuminuria, and put on the form just described. In this case it was always a late symptom, chiefly of importance in relation to prognosis. Foreign observers had certainly stated that in tubercular meningitis tubercles might be seen in the choroid; he had not observed them himself, although he had examined several cases of that disease, and he thought that numerous observations were still wanting to show the relative frequency of their occurrence and their importance in a diagnostic point of view. He had purposely omitted all allusion to the histology of these cases, because his own observations were as yet defective on this point, and other observers had not agreed in regard to it. Many regarded the fatty degeneration as existing in the ganglionic cells of the retina, others in the granular layer, while Hulke and Schweigger had found it to exist in the connective tissue. Where opinions were so divided no instruction could be conveyed by their mere repetition.

Part Fourth.

PERISCOPE.

On the Use of Hydrate of Chloral in Affections of the Nervous System. By Dr Clouston, Medical Superintendent of the Cumberland and Westmoreland Asylum.—All the patients to whom Dr Clouston administered chloral were suffering from affections of the nervous system, complicated with nervous symptoms. He has given the drug in forty cases, in doses varying from ten grains up to eighty, for the purpose of procuring sleep, of calming nervous irritability, of subduing maniacal fury, of allaying extreme depression of mind, of arresting an attack of mania, and in neuralgia and chorea. The principal cases in which it was given were acute and chronic mania and in sleeplessness. In seven cases of acute mania, uncomplicated with any apparent organic affection of the brain, the chloral was administered for the purpose of procuring sleep; and by means of forty-grain doses this object was effected in every instance. In the excitement of chronic mania, and the still greater excitement of epilepsy and general paralysis, a drachm is often required. In cases of mere sleeplessness, without any particular excitement, twenty grains were usually sufficient, and generally thirty grains produced sound sleep, and no bad consequences supervened on waking, except slight giddiness and confusion in two cases out of eight. The doses given were twenty grains at the beginning when the symptoms were slight, and thirty grains when they were very severe. In the former class of cases Dr Clouston often increased the dose to thirty grains, and in the latter nearly always to forty and often to sixty grains. With respect to the effect of chloral on the temperature of the body,—a point on which much diversity of opinion exists,—Dr Clouston found, in the cases where the temperature was noted, that in some the temperature remained as high as before the drug was given, but in others it was decidedly lowered. This latter effect of chloral Dr Clouston considers to be a strong point in favour of its use in acute mania; for this disease, by causing increased heat of the body, burns away the tissues, and any substance which diminishes this tendency must do good. In one case of puerperal mania, the patient's temperature was 100 degrees when she went to bed; but she took forty grains of chloral, slept eight hours, and the next morning the temperature was 98·2, and this was only a single example. Comparing the effects on temperature of chloral, opium, bromide of potassium, and alcohol respectively, Dr Clouston found that chloral lowered the average temperature, taking all the cases together, but not to any great extent, and not nearly so much as alcohol. Dr Clouston himself took a dose of fifteen grains, which raised the temperature half a degree, and, on the whole, he is not yet quite able to determine the conditions under which chloral affects the temperature of the body. Dr Clouston's conclusions as to the effects of chloral are, that it has proved a most safe and certain sleep-producer; that by this property attacks of insanity may probably be warded off in some cases; that its action in abating and soothing excitement is more uncertain than its sleep-producing powers, and that it is, therefore, only adapted for the treatment of short or recent cases of insanity, or to subdue temporary excitement. Dr Clouston states, moreover, that, whether it does good or not, it never does harm, and in this respect it is the very king of all narcotics.—*British Medical Journal*, May 7, 1870.

ON THE USE OF OPIUM IN DIABETES, AND ON THE USE OF CARBONATE OF AMMONIA IN LARGE DOSES IN THE SAME DISEASE. By Dr F. W. PAVY.—Dr Pavy knows no medical agent that is capable of exerting such a controlling influence over diabetes as opium. He has employed alkalies and ammonia largely, and thinks that they produce a slowly beneficial action in the complaint; but with opium the effect is so striking, that there can be no doubt of its reality. In three cases treated by Dr Pavy the sugar was removed, in two of them by opium, and in one by morphia. In these cases no other medicine was administered. They were instances of the disease in middle-aged subjects. The sugar was reduced as far as it could be by a restricted diet, and then, under the influence of the morphia and opium, it was entirely removed. In another case, in Guy's Hospital, Dr Pavy administered ozonic ether without beneficial effect; but, under the use of morphia, the quantity of urine and sugar declined from day to day, and in about three weeks the sugar disappeared altogether. When the morphia was discontinued the sugar reappeared, but when opium was afterwards administered the sugar again disappeared. Carbonate of ammonia was employed in another case by Dr Pavy, and it certainly seemed to exert a controlling influence over the disease, but such an immediate and decided effect was not produced as with opium. The patient was ordered to take 100 grains of carbonate of ammonia in the 24 hours; the salt was dissolved in a pint of water, and administered in small and frequently-repeated portions. Under this treatment, accompanied by a restricted diet, the sugar disappeared, but it sometimes reappeared.—*British Medical Journal.*

MICROSCOPICAL CHARACTERS OF THE BLOOD IN RELAPSING FEVER.—Dr H. C. Hand has studied the condition of the blood in 30 cases of relapsing fever, in the Philadelphia Hospital. He notes a granular condition of the red corpuscles, as if the colouring matter were breaking up its uniform distribution, and becoming collected in patches. This granulation is often most marked round the circumference of the corpuscles, giving them the appearance of crenation. Crenation also is observed, both in connexion with the granular condition and independently of it, in various degrees, from mere waviness of edge to complete deformity. Another change is increase in the white corpuscles. Dr Cormack and Professor Allan Thompson, in 1843, made this observation. Dr Hand says that he found the white corpuscles increased in only three of his cases; but the red corpuscles, in their granular condition, bear a resemblance to the white, and may be mistaken for them. The alteration in the blood occurs very early. The author relates a case in which the blood was examined within three or four hours of the first seizure, and found to be in an average state of degeneration. The case proved a typical one of relapsing fever. The author believes that by living in a contaminated atmosphere the blood may become changed without the fever necessarily following. This was noted in the case of four of the resident medical attendants of the hospital. Once developed, the characters of the blood are constant, abating but slightly in the remissions. The abnormalities do not disappear for some time after the subsidence of the last relapse, when only debility and anæmia remain. The coagulability of the blood seems but little impaired. "Chicken-fat clots" are quite common in the post-mortem examinations; and in most cases the tendency of the red corpuscles to form rouleaus has been decided.—*New York Medical Journal*, August 1870.

ON THE TREATMENT OF DIABETES BY ARSENIC. By DRS DEVERGIE and FOVILLE, jun.—After alluding to the difficulty of treating diabetes with success by any methods hitherto in use, the writers of this paper adduce their reasons for believing that arsenic may be found useful in this disease, and they support their view both by clinical experience and by physiological data.

I. *Clinical Facts.*—A dozen years ago M. Devergie was led by chance to apply arsenic to the treatment of diabetes, for he was attending a lady affected with a painful attack of prurigo of the vulva, for which he was prescribing arsenic. In the meantime some of the symptoms exhibited by the patient caused a suspicion that she was suffering from diabetes, and this turned out to be the case. Thence the two maladies, prurigo and diabetes, were both watched together and were both treated successfully by the same remedy, and since that time M. Devergie has employed the same treatment in diabetes and with the same result, even when it was not accompanied by prurigo. Dr Foville, the elder, employed arsenic in 1857 in the case of a diabetic patient, and the proportion of sugar in the urine was notably diminished by the treatment; and, encouraged by this result, he afterwards treated a great number of cases in the same manner, and very often with great success. Dr Foville, the younger, having observed the effects of arsenic in his father's diabetic patients and in some analogous cases, wrote in 1868 that arsenic is one of the best agents for arresting the symptoms of diabetes, and diminishing considerably, if not altogether banishing, the presence of sugar in the urine. Other practitioners in France have also reported favourably of this mode of treatment, although it is not pretended that the results have been invariably favourable. The mode of administration recommended by Drs Devergie and Foville is Fowler's solution, beginning with 1 drop daily, and gradually augmenting the dose to 3 and 4 and even to 12 or 14 drops a day.

II. *Physiological Considerations.*—Taking as their basis the physiological experiments of Claude Bernard on the glycogenic function of the liver, and supposing that diabetes is caused by paralysis of this function, Drs Devergie and Foville argue that the indication to be fulfilled in the treatment of diabetes ought to consist in opposing the vascular paralysis, and in awakening the energy of the vaso-motor filaments of the great sympathetic, or in a word in regulating the capillary circulation of the liver. This indication, they say, arsenic appears especially adapted to fulfil, for it is by its action on the great sympathetic, and especially on the vaso-motor nerves, that some authors explain its efficacy in intermittent fevers, exophthalmic goitre, etc., and that they themselves (Drs D. and F.) consider it very efficacious in certain congestive conditions of the encephalon. Drs Devergie and Foville admit, however, that the pathology of diabetes is still involved in some obscurity, although they believe that Claude Bernard's theory is the most plausible, and that it supports their views as to the good effects of arsenic in this disease. —*Bulletin Général de Thérapeutique*, June 30, 1870.

BELLADONNA IN CONSTIPATION.—Attention may be drawn to the value in which belladonna is held in the treatment of simple constipation by many physicians. Dr A. Fleming, of Birmingham, noticed some years ago, that, in prescribing atropia, slight relaxation of the bowels frequently took place one to four days after the alkaloid was taken. If any constipation had existed it was removed, and sometimes even purging was produced. Dr Fleming gave atropia (1-60 gr.) in pill or solution, and often in combination with some saline purgatives and tonics.—(*British Medical Journal*, Dec. 1865.) Dr S. G. Armour also speaks most favourably of the services of belladonna in chronic constipation due to atony of the colon, and especially in cases of a nervous and hysterical constitution. In such cases 1-50 to 1-40 gr. of atropia, or ¼ gr. ext. bellad. two or three times daily, will usually in a short time bring about easy and natural defecation.—(*American Practitioner*, Jan. 1870.) Dr T. B. Nunneley, in the English *Practitioner*, adds his testimony in confirmation, and in dyspeptic constipation gives 1-6 to ⅓ gr. of the extract every morning on rising.

ON EDIBLE EARTH.—Professor C. W. C. Fuchs, in the *Verhandlungen des Natur-historisch Medizinischen Vereins* zu Heidelberg, vol. 5, No. 3, says:—To the list of the earth-eating people the Javanese must be reckoned; a fact brought to our knowledge by Alexander von Humboldt. From the specimens which I have had the opportunity of seeing, it is to be inferred that earths of very different external appearance and of different character are eaten. One deposit of such edible earth, possessing an intensely red colour, exists in the neighbourhood of Sura Baja, between strata referable to the time of the latest tertiary.

This earth is formed into thin cakes, having a diameter of from 1 to 1¼ inches; it is then dried over an open fire, and in this condition is brought into the market. It is perfectly smooth to the touch, and is composed of materials in the finest state of subdivision. By a chemical analysis, to which I subjected it, after removing the thin stratum of soot which settles upon it during the process of drying over the fire, I convinced myself that it does not contain the slightest trace of an organic substance. The analysis gave the following result:—

SiO_2	50·63
AlO_3	21·32
FeO_3	10·47
H_2O	12·97
CaO	2·40
MgO	0·33
K_2O	1·02
Na_2O	0·23
	99·37

Of the water 6·36 per cent. was driven off below red heat. The remaining 6·61 per cent. disappeared only when the test portion was heated to bright redness. From the analysis it is apparent that the earth consists of a clay rich in iron, in which is still retained small quantities, yet undecomposed, of the minerals from which it derived its origin. In this way the trifling percentage of potassa and soda may be accounted for. Taking away the accessory alkalies, and so much of the silica as they demand, there remains behind a clay of the formula—

$$H_2\,(Al, Fe)\,Si_2\,O_8 \times H_2\,O.$$

Humboldt suggested that the probable explanation of the earth-eating habit might be found in the desire to fill the stomach, and thus, in a measure, to allay the pangs of hunger. This view of the subject may be satisfactory when applied to those rude people who devour it in great quantity; but it will not apply to the case of the Javanese, who make use of but trifling quantities. With these it is much more probable that the physical properties of the earth alone are sufficient to furnish the cause we are seeking.

Upon rubbing it not the slightest grittiness is perceptible, and on being moistened with water it forms a smooth and unctuous mass. The enjoyment derived from eating it seems to reside in the similarity of the sensations it produces with those derived from the eating of fatty substances. In many parts of Wurtemberg the quarrymen have the habit of eating the smooth, unctuous clay which collects in the fissures of the rocks. The term "Mondschmalz," which they apply to it, would seem to refer to the enjoyment they experience in the process of eating.

THE DOSES AND PREPARATIONS OF CARBOLIC ACID.—(Michigan University Medical Journal, March 1870.)—As a rule, it is better to dissolve the crystallized carbolic acid (Calvert's) in the proportions of one part by weight of the acid to six of glycerine (*carbolate of glycerine*). In this state it can be equally diluted to any degree of strength.

In general a *dose* of carbolic acid is one grain in an ounce of water.

As a *gargle*, one or two grains to an ounce of water.

As an *injection*, one grain to four ounces of water.

As a *lotion*, fifteen grains to an ounce of water.

As an *ointment*, sixteen grains to an ounce of benzoated lard.

As a *liniment*, one part to twenty of olive-oil.

As a *plaster*, one part of carbolic acid to three parts of shellac.

The crystallized carbolic acid to be used as a caustic.

The carbolate of glycerine, as above, use in one or two drop doses, internally.

Antiseptic oil for abscesses, one part of acid to four of boiled linseed-oil.

Antiseptic putty, six spoonfuls of the antiseptic oil mixed with whiting.

Aqueous solution of carbolic acid is one part of acid to forty of water (one ounce of acid to a quart of hot water well agitated and filtered).

Sick-rooms, to disinfect: place a portion of the dissolved crystals in a porcelain dish, and float it in a larger vessel of hot water.

Disinfecting purposes generally: one pound of *crystals* to six gallons of water. *Fluid*, one part to eighty of water. *Powder*, one ounce of crystals with four pounds of slaked lime.

For drains: one pound of the fluid carbolic acid to five gallons of warm water.

Toothache is often cured with one drop of carbolate of glycerine; and diarrhœa arrested in half an hour with two drops in a wine-glass of water.

In all cases of parasitic life it is advisable to commence with very dilute carbolate of glycerine.

Inasmuch as carbolic acid will destroy the power of *vaccine virus*, it becomes an interesting inquiry as to the possibility of using carbolic acid internally as a preventive, so as to fortify the human system against the incoming of zymotic diseases.

I have some striking facts in support of this probability, but my observation has been too limited to do more than incline to the belief; and here I leave it in the hands of the Conference, expressing my readiness to give further details if the members desire it.—*Report of Br. Pharm. Conference, in London Pharmaceutical Journal.*

SOLUBILITY OF SOME CHEMICALS IN GLYCERINE.— (Boston Medical and Surgical Journal, August 25, 1870.)—The author found that 100 parts glycerine dissolve the annexed quantities of the following chemicals:—

Acid arseniosum, ...	20
„ arsenicum, ...	20
„ benzoicum, ...	10
„ boracicum, ...	10
„ oxalicum, ...	15
„ tannicum, ...	50
Alumen, ...	40
Ammon. carb., ...	20
„ murias., ...	10
Antimonii et potas. tart., .	5·50
Atropia, ...	3
Atrop. sulph., ...	33
Barii chlorid., ...	10
Brucia, ...	2·25
Calcii sulphid., ...	5
Cinchonia, ...	0·50
Cinchon. sulph., ...	6·70
Cupri acetas, ...	10
„ sulph., ...	30
Ferri et potass. tart., . .	8
„ lactas, ...	16
„ sulphas, ...	25
Hydrarg. chlor. corr., . .	7·50
„ cyanid., ...	27
Iodinium, ...	1·90
Morphia, ...	0·45
Morph. acetas, ...	20
„ murias, ...	20·20
Phosphorus, ...	0
Plumbi acetas, ...	20
Potassæ arsenias, . . .	50·50
„ chloras, ...	3
Potassii bromid., ...	25
„ cyanid., ...	32
„ iodid., ...	40
Quinia, ...	0·50
Quiniæ tannas, ...	0·25
Sodæ arsenias, ...	50
„ bicarbon, ...	8
„ boras, ...	60
„ carbonas, ...	98
„ chloras, ...	20
Sulphur, ...	0·10
Strychnia, ...	0·25
Strychn. nitras, ...	4
„ sulphas, ...	22·50
Urea, ...	50
Veratria, ...	1
Zinci chlorid., ...	50
„ iodid., ...	40
„ sulphas, ...	35

—*Neues Jahrb. f. Pharm.*, 1869, from *Pharm. Zeitsch. f. Russl.*

A NEW ANTISEPTIC.—The hydrated chloride of aluminium, to which Mr John Gamgee has recently drawn the attention of medical men and of the general public, appears to be a valuable antiseptic. It is quite as potent as chloride of zinc or carbolic acid, and is at the same time non-poisonous, and devoid of unpleasant smell of every kind. These qualities will no doubt ensure its being extensively used, and at no distant date we may expect it to displace the antiseptics which are at present in vogue.

It is somewhat strange that this substance should have been so long overlooked as a possible antiseptic, and Mr Gamgee certainly deserves credit for suggesting the utilization of it for this purpose. The reason why it has been passed over is probably to be sought in its not being a waste product in any common chemical manufacture. The anhydrous chloride of aluminium, which is manufactured in order to serve for the preparation of metallic aluminium, is far too costly on account of the troublesome nature of the process by which it is prepared—to wit, by passing chlorine at high temperatures over a mixture of aluminium and charcoal. By placing the anhydrous chloride of aluminium in water, it is of course converted into hydrated chloride.

The most economical process for the preparation of the hydrated chloride of aluminium appears to be by double decomposition between sulphate of alumina and chloride of calcium (both of which are cheap commercial products). When solutions of these two salts are mixed together, sulphate of lime is formed and appears as a precipitate, while the hydrated chloride of aluminium remains dissolved.

On allowing the aqueous solution to evaporate at a very gentle heat and afterward cooling, crystals of hydrated chloride are produced. If an attempt be made to drive off the water from the hydrated chloride by the application of heat, decomposition will take place. Hydrochloric acid is evolved under these conditions, and oxychloride of aluminium is formed, and, by pushing the process, alumina is obtained as the ultimate fixed product.—*Lancet*, August 27, 1870.

ANTIPHLOGISTICS IN DISEASES OF CHILDREN.—Professor Jacobi, in a series of admirable clinical lectures before the New York Medical Journal Association, records his experience in the use of the various antiphlogistic agents in diseases of children. We abstract a portion of his instructive testimony.

Cold.—He uses cold water after the plan recommended by Ziemssen. He places the patient in a bath, at first tepid, and then gradually cooled down. In this way the temperature in typhoid fever may be diminished by as much as six degrees. Repeat the bath every two hours so long as the temperature rises suddenly, after each bath, to say 103° to 104° F. Eight or ten of these plunges may be necessary every day to reduce the temperature. This treatment often succeeds when everything else has failed. Dr J. has seen many cases accompanied by this excessive heat, where every other means had been tried without effect, promptly relieved when the child was placed in a warm bath, and cold water added until the bath stood at 64° and 60°.

Scarlet Fever.—Cold applications are here often almost indispensable. In this fever the temperature will now and then rise to 106°, 107°, 108°, and this excessive heat alone prove the fatal element. He knows no remedy that will reduce such a temperature and keep the patient alive except cold water—not to speak of cold air. "Only this week I have seen such a case, where the thermometer in the rectum showed 108°. Every other means had been tried without effect. The child was placed in a warm bath, and cold water added till the bath stood at 64° and 60°. He was kept in the bath for two hours in the first twenty-four. To-day his temperature has not risen above 102°, and I consider him out of danger. I am sure that without the cold-water treatment he would have been lost. Of course there are many cases of scarlet fever in which the brain symptoms are so prominent that local cold applications are used by every one. But I am now alluding to the general cold-water treatment for the reduction of the general temperature of the blood. In other eruptive fevers—in variola, for example—the same treatment would be good. I would not give the impression that I think cold water a panacea or a remedy suitable for every age and condition. It may do much harm. If, for instance, there is one danger to the new-born infant greater than any other, it is that from the application of cold. I do not believe a baby should have a really cold bath until it has developed the faculty of locomotion, and the reactive power that comes with it. Cold applications have been recommended in the cephalhæmatoma of the new-born. Now it is a fact that this will get well if left to itself. We need not fear its spreading, for it will not extend beyond a suture. It is a fact, too, that the infant cannot bear the cold application for a long period without danger of collapse; it should therefore be used with caution. So also in the erysipelas of the very young, cold applications may prove dangerous. Even in hyperæmia of the brain and its meninges, where cold is so frequently employed, I think it is possible to overdo the thing. I add common salt to the water in the treatment of chronic catarrh. A large number of cases of ophthalmia in the new-born will get well under ice applications alone—a cloth taken directly from a lump of ice and placed on the eyes every half-minute, and this continued not for hours, but for days. I have seen very many cases of diphtheritic ophthalmia, many where the eye was destroyed, and the only cases which did well were the ones in which ice was used. Furthermore, I would not consent to be without ice in diphtheria or croup; and for many years my local treatment of these two diseases has consisted almost exclusively in its use, both externally and internally, especially the latter, where there is much pharyngeal affection. If there is anything which I should rely upon in pneumonia, especially lobar pneumonia, where the fever is very high, it is cold-water treatment. If the temperature reaches 106°, 107°, pack the patient every hour or two. Under this cases have done well that I had almost despaired of. In most instances, however, cold local applications, changed every few minutes, will suffice. Not only in lobar pneumonia, but also in many cases of bronchitis and catarrhal pneumonia, may cold be relied upon. In acute heart diseases, with the consecutive præcordial pain, cold applications over the region of the heart, and reaching down to that of the stomach, will almost always do good. In synovitis, and especially rheumatic synovitis, cold will do good in nearly every case, and I see no contra-indication to its use."

Digitaline.—Digitaline may be administered either in pill or in a liquid, although it does not dissolve very readily. In chronic pneumonia, chronic endocarditis, chronic inflammation of the valves of the heart, I am so sure of the effect of this drug that I give it to office-patients and continue it for weeks. I send them off with prescriptions containing perhaps one eighth of a grain per diem. To children in chronic inflammations I would give about half the dose proper for an adult; to a child of three or four years, suffering from chronic defect of the cardiac valves, I should hardly dare to give less than one-twelfth or one-sixteenth of a grain daily.

Tincture of Veratrum in Pneumonia.—In the acute pneumonia of a baby I would give a drop of the tincture every hour; to a child four or five years old, perhaps two drops every hour. If the attendant is intelligent enough to count the pulse, I say, bring down this pulse to one hundred and ten, or one hundred, but not lower; because when the pulse falls lower the drug is apt to cause vomiting and temporary collapse. To obviate local irritation of the pharyngeal or gastric mucous membranes, I give the tincture in barley-water. This drug has no cumulative effect like that of digitalis. It will bear combination with quinine, and I think this is an important point. I often combine quinine with veratrum or digitalis where I want to get not a speedy but a continued effect upon the pulse. Especially in the pneumonia of a debilitated child, where you are in doubt about stimulating to any great extent, where you do not know whether you ought to commence with benzoic acid, camphor, etc., you will control the pulse better with quinine and veratrum than with the latter alone. I ought to add that in most cases it is advisable to combine opium or hyoscyamus with veratrum to obviate local gastric irritation.

Opium.—I believe that opium as an antiphlogistic in most of the inflammatory diseases of infancy and childhood should be avoided. While I am in the habit of using opium to a great extent in other affections of infancy and childhood, I refrain from its use in inflammatory and febrile affections, except in peritonitis, or perhaps to relieve irritation or cough momentarily in diseases of the respiratory organs.

Quinine in Inflammation.—The doses of quinine generally given are, I believe, decidedly too small—indeed I know they are. If the drug is to have an anti-febrile effect, it must be given so as to reduce the pulse, and especially the temperature; nothing which fails to do this can claim the name of febrifuge. Now I have often found that in the pneumonia of a child of two years a dose of five or six grains would have no such effect—none at all upon the temperature, and hardly any upon the pulse; while a dose of ten grains would diminish both. I have made ever so many measurements of temperature in the rectum, the only place reliable, to satisfy myself upon this point; and when one has tested it satisfactorily, he will certainly in his next case give the ten grains at first, and not waste time on the smaller doses because the books prescribe them.

At the present day we have the advantage of the thermometer in determining the action of remedies, and we have certainly as good a right to fix their doses as had those less fully armed twenty or thirty years ago. I deem quinine indicated also in all secondary inflammations. In such a case I would not give less than five grains to any child of any age. With this dose I have frequently obtained a good effect in very young infants; but a child of one year will often refuse to respond to the remedy until seven or eight grains are reached; and to a child of seven or eight years, I seldom give less than ten grains. The dose need not be frequently repeated. If you can see the patient in the morning and give him one good dose, you will probably find, in a few hours, that pulse and temperature have both notably fallen, or at all events not risen as expected. It is a curious fact that by quinine the temperature is first reduced, and the pulse follows; while by veratrum, digitalis, and remedies of that class, the pulse is the first to be affected. Therefore as the temperature is the main element in fever, quinine would seem to be the febrifuge proper.—*New York Medical Record.*

NEURALGIA OF THE JAW-BONES.—Professor Gross, in *American Journal of Medical Sciences and American Practitioner*, says: "There is a form of neuralgia of the jaw-bones which, as far as my information extends, has not hitherto been described. Its seat is in the remnants of the alveolar process of edentulous persons, or in the alveolar structure, and in the overlying gum, and is met with chiefly, if not exclusively, in elderly subjects. It is more common in the upper than in the lower jaw. The part affected is usually very small, often not exceeding a few lines in extent. The soft tissues around do not seem to suffer, at least not in the same degree; on the contrary, the morbid action is generally limited to the osseous structure. In rare instances there may possibly be some involvement of the gum, which is nearly always exceedingly hard and dense, grating more or less under the knife, and adhering with extraordinary firmness to the atrophied alveolar process beneath. The pain is generally paroxysmal, coming on in fits and starts, very much as in ordinary neuralgia, the slightest causes being sufficient to provoke it, as talking, mastication, the contact of hot or cold fluids, deglutition, or mental excitement. Sometimes it is momentary, coming and going with the rapidity of lightning; occasionally it lasts for hours together; and cases occur, although they are rare, in which it continues, with but little mitigation, for an indefinite period. The pain varies in character; thus it may be sharp and darting, dull, heavy, aching, boring, or gnawing. Pressure generally relieves rather than aggravates it. Now and then, when it is uncommonly severe, there may be more or less spasm of the muscles of the face, but this is rare. The pathology of the affection seems to be compression of the minute nerves distributed through the wasted alveolar process, dependent upon the encroachment of osseous matter upon the walls of the canals in which they are naturally enclosed. The disease usually comes on gradually, and proceeds from bad to worse, until, in many cases, the suffering is rendered nearly intolerable. The only effectual remedy is excision of the affected alveolar process. No particular attention need be bestowed upon the after-treatment. A mild course of chalybeate tonics may be required when the patient is anæmic, or affected with flatulence and indigestion."

IMPROVED FORMULA FOR THE ADMINISTRATION OF IODINE.—Dr F. P. Mann, of Brooklyn, says: "The administration of iodine in full doses, in the formula given by Lugol, in pill or any concentrated solution, is apt to be attended with more or less difficulty, owing to the fact that the remedy produces constriction of the fauces, and sometimes irritation of the stomach. By the use of the following formula, complete iodism can be produced rapidly, and maintained for any desirable length of time without producing griping pain or any disagreeable result. I have employed it successfully where ordinary doses of iodine and iodide of potass have failed :—

"R. Iodinii, gr. xvj.; Iod. potass., gr. xxxij.; Aquæ puræ, ℥ij.; Syrup. empyreumat., ℥vj.; Ess. gaultheriæ, ʒij. M. et ft. sol. Dose, one tablespoonful three times per day, one hour before meals.

"It will be seen that each tablespoonful contains one grain of pure iodine. The advantages of this formula are, that double the quantity of iodine can be given without inconvenience; that the remedy is rendered tasteless, while the syrup is pleasant and agreeable. The solution should stand twenty-four hours before using."—*New York Medical Journal.*

Part Fifth.

MEDICAL NEWS.

THE ARSENIC-EATERS OF STYRIA.—Men of science who traversed Styria have long reported the fact that there were people in Styria who consumed arsenic. However, this statement was denied by others, who affirmed that the white mineral they ate was nothing but chalk.

Prompted by the importance of this subject, the royal medical counsel, Dr Von Vest, occasioned the issue of a circular to the physicians of Styria, requesting them to communicate their experiences with regard thereto. Seventeen reports were obtained, from which the following is an extract :—

The principal seat of the arsenic-eaters, according to these, is in the northern and north-western part; the southern part, however, is free from them. The district of Hartberg, in the former, counts not less than forty individuals who indulge in that habit. From the various sorts of arsenic, the white arsenic, or ratsbane, is mostly taken; less so, the commercial yellow, and still less the natural red arsenic or orpiment. The arsenic-eaters begin with a dose the size of a millet, and increase this quantity gradually to the dose of the size of a pea, the weight of these quantities being 0·22, 0·56, and 0·62 grains avoirdupois, respectively.

These doses are either taken daily, or every other day, or only once or twice a week. In the district of Hartberg the custom prevails to suspend this unwise usage at the time of the new moon, to commence at the time when she is on her increase with the relative smallest dose, and to increase with it to the time of the full moon. From this period the quantity is diminished, but aloes are taken in increased doses till strong diarrhœa is produced. Directly after the administering of arsenic, most people abstain from drinking; and with regard to aliment, some prefer pastry to meat, while others abstain from the taking of fat. However, the majority will take all kinds of food, indulging also considerably in the use of alcoholic beverages. Older persons who have been accustomed to that habit from their boyhood feel a sensation of warmth in their stomach shortly after taking the poison, complaining only of dizziness in the head after excessive use.

The ratsbane-eaters belong mostly to the lower classes—wood-cleavers, stable-grooms, charcoal-burners, and wood-warts. They fall into that habit at the early age of fifteen, and continue it until the ages of seventy and seventy-six. Although the female sex is not averse to it, the majority belong to the male sex. They are generally strong and healthy persons, courageous, pugnacious, and of strong sexual dispositions. The reason of this habit is very probably attributable to the fact of its apparent favourable action upon horses. If requested to explain the reason of their indulging in it, they will say that it is to make them strong and healthy.

ICHABOD!—Up to yesterday afternoon, no fewer than 1594 students had taken out matriculation tickets at the University for the session 1870-71. The list, however, is not yet closed, and as a considerable number matriculated yesterday, there is every prospect of the number being increased. The matriculations up to yesterday exceed the total for the session of 1869-70, or any other session during the past forty years. The following is an analysis of the number who have entered the various faculties for 1870-71:—

	Arts.	Medicine.	Law.	Divinity.
1st year,	295	183	130	21
2d year,	132	157	100	18
3d year,	119	103	94	23
4th year,	108	109	—	2
Total,	654	552	324	64

The classes of the new Professor of Midwifery are being well attended. In the medical and surgical school, Dr Keiller has discontinued giving lectures on midwifery during the winter session, but will resume his classes as formerly in the summer session. Dr Matthews Duncan has drawn around him a considerable number of students, but it is generally understood that the circumstances that lady students are taught by him along with males has prevented a number of the latter, who would otherwise have attended, from taking out tickets for his classes.—*Courant*, Nov. 18.

THE EDINBURGH UNIVERSITY COUNCIL.—The statutory half-yearly meeting of the General Council of the University of Edinburgh was held in Queen Street Hall, on Friday, Oct. 28. Principal Sir Alexander Grant, Vice-chancellor, occupied the chair, and was accompanied to the platform by—Professor Christison, the Rev. Dr Phin (Assessor from the General Council in the University Court), Professors Bennett, Blackie, Kelland, Crawford, Lorimer, Balfour, Macpherson, Spence, Calderwood, Seller, Masson, Lister, Crum Brown, Sanders, Turner, Laycock, Simpson, Jenkin, Mr Alexander Nicholson (Assessor to the Rector), etc.

After other preliminary business was disposed of,

Mr Alexander Gibson, advocate, moved—" That a representation be made to the University Court, urging the desirableness of a change in the constitution of the Board of Curators, with a view to its being made more representative of the different bodies of which the University is composed, and better adapted for the function of selecting persons to fill high scientific and educational appointments."

This motion was aimed at the Town Council, who, strange to say, have the appointment of four out of the seven electors to University Professorships.

Professor Calderwood said he had an opportunity—not a very favourable one for any man—of going through a canvass for two Chairs; and he had thus occasion to judge, from personal experience, of what could be said by those who were electors for those Chairs. He had not found any individual on those bodies who professed himself able to judge, personally, as to the claims of the candidates —(hear, hear); and he was quite satisfied the Council would acknowledge that no man, who had any proper understanding of what University appointments implied, would at all presume to say that he was competent to form any such judgment. In regard to the constitution of the Board of Curators, he thought all the members of Council were prepared to allow that any board constituted of four gentlemen from one body, and three from another, was badly constituted. (Hear, hear.) He thought they were all unanimous in thinking that, whatever should be the constitution, four from one quarter and three from another might breed dispute and faction. He moved, as an amendment, " That a committee be appointed to consider what changes may be desirable in the constitution of the Board of Curators, to prepare a definite plan, and to submit the same to next meeting, with a view to further steps by this Council."

The Rev. Dr Phin seconded the amendment. He was quite sure there was not in the Council an individual who would say that matters should remain as they were. The fact was, that the present was the worst possible system of patronage, and that a change could not be made without being for the better.

Mr Gibson then withdrew his motion in favour of the amendment, which passed *nem. dis.*

The only other business of general interest before the meeting was that in regard to the facilities for study to be afforded to the female medical students.

Professor Crum Brown moved—"That whereas last year a resolution was passed in favour of the medical education of women in the University, and whereas it is found that under the present regulations of the University Court such education is practically impossible, the General Council represent to the University Court the desirableness of so far modifying the regulations as to afford to women the same advantages as to other medical students." He said that a year ago it was resolved to admit women to medical education in the University, and a series of regulations was drawn out to carry into effect the wishes of the University. The experiment had proved perfectly successful excepting in one point, and that was that it showed the impossibility of proceeding any further. (Laughter.) The women who came to the classes were unquestionably above the average in intellectual ability, and it was shown that they were as capable as men of profiting by the courses of lectures delivered at the University. But one difficulty they encountered was, that the teaching power of the University was not sufficient to carry on such a scheme of double instruction. It was necessary that a new college should be founded for the education of women, that the professors of this new college should be, if they chose, professors of medicine of the University, and if they did not choose, then no one should be the professor. In these circumstances, what were the inducements held out to professors to accept this new chair of Chemistry, or, it might be, of Physiology? There was no salary; the classes were sure to be small, and no allowance was made for class assistants or expenses. There was no provision for filling the chairs; and if the professors did not choose to accept the new duties, then nobody else would take them. This could scarcely be said to be carrying out the wish of the University. The next part of the motion was, "that the Council represent to the University Court the desirableness of so far modifying the regulations as to afford to women the same advantages as to other medical students." How was that to be done? He had not a scheme ready for that purpose; but he had no doubt the University Court could devise a plan for carrying out their wish that women be admitted to the medical education, and it was with the view to their doing so that he proposed his motion.

Professor Tait seconded the motion.

Professor Turner moved the previous question, which was seconded by Prof. Lister, and carried by a majority of 47 to 45.

Royal College of Physicians and Surgeons.—Introductory Address by Dr Joseph Bell.—The Royal College of Physicians and Surgeons of Edinburgh was opened yesterday for the winter session by an introductory address by Dr Joseph Bell, one of the lecturers in the school. The hall was crowded; and among those present were Dr Gillespie, President of the Royal College of Surgeons; Dr A. Halliday Douglas, President of the Royal College of Physicians; Professor Sanders, Dr Charles Bell, Dr Chiene, Dr Thos. R. Fraser, Dr Arthur Gamgee, Dr Rutherford Haldane, Dr P. D. Handyside, Dr Husband, Dr Keiller, Dr Linton, Dr Littlejohn, Dr Stevenson Macadam, Dr Angus Macdonald, Dr A. Gordon Miller, Dr R. Peel Ritchie, Dr Wm. Stevenson, Dr P. H. Watson, Dr John Wyllie, Lecturers; Dr Robert Paterson, Dr W. H. Lowe, Dr Pattison, Dr Cumming, Dr Inglis, Dr Dumbreck, Dr David Wilson, Dr William Brown, Dr G. W. Balfour, Mr Benjamin Bell, etc.

Dr Gillespie occupied the chair, and introduced Dr Joseph Bell.

The Lecturer, after some introductory remarks, enlarged on the special merits of the Edinburgh school as being a double one, thus having rivalry with unity, choice of teachers for the student, and supplementary courses, not to speak of the great advantages it had over London in the manner of selection and education of its teachers. This able address will appear in our January number.

At its conclusion, Dr Haliday Douglas proposed a vote of thanks to Dr Joseph Bell, whom he congratulated in having that day so worthily laid claim to the reputation which he had inherited from his forefathers. (Applause.)

Votes of thanks to the Chairman, and to Dr Stevenson Macadam, the Secretary of the College, terminated the proceedings.

Royal College of Surgeons.—Dr Andrew Wood has been re-elected Representative of the College in the General Council.

Refusal to Admit Lady Students to the Royal Infirmary.—In consequence of the various documents received by the Managers of the Royal Infirmary from the lady students, lecturers, physicians and surgeons of the hospital, and male students, in reference to the admission of ladies to the wards, a special meeting of the Managers was held on Wednesday, 16th November, to consider the subject. The Lord Provost occupied the chair, and there was a large attendance. Mr E. L. I. Blyth, C.E., moved a resolution, to the effect that tickets be issued to the lady students on the condition that they should only attend in the wards of those surgeons and physicians who were willing to receive them. Dr Halliday Douglas, President of the Royal College of Physicians, seconded the motion. Dr Combe moved as an amendment that the Managers adhere to the decision which they arrived at unanimously a fortnight ago not to issue tickets of admission to the wards of the Infirmary to lady students. Dr Andrew Wood seconded the amendment; and after a long discussion, the Managers divided, when there voted:—*For Mr Blyth's motion*—Mr Blyth, Dr Halliday Douglas, Dr Moir, Dr Littlejohn, Convener Robertson, and Mr David M'Laren—6. *For Dr Combe's Amendment*—Dr Combe, Dr Andrew Wood, Professor Christison, Mr David Smith, W.S., Dr Omond, Mr John Weir, Professor Turner, Professor Muirhead, the Rev. Dr Nicholson, and Mr Hope, D.K.S.—10. The amendment was thus carried by a majority of four. Lord Neaves and Mr Charles Lawson, jun., would, it is understood, have voted for Mr Blyth's motion, but the former was unable to attend, and the latter was obliged to leave the meeting previous to the division. The Chairman did not vote, being prevented from giving a deliberative vote by the laws of the Infirmary. It is said that the lady students will test the legality of the decision arrived at by the Managers.—*Scotsman*, November 17.

UNIVERSITY OF GLASGOW.—The new University was formally opened on Monday, 7th November, His Grace the Duke of Montrose, Chancellor, presiding. The proceedings were held in the large hall which is to be devoted to the Hunterian Museum. His Grace was accompanied to the hall by the members of the Senatus Academicus, the Provost of Glasgow, the Marquess of Bute, the Chancellor and the Principal of the University of Edinburgh, the Lord Provost of Edinburgh, Mr Gordon, M.P., etc., the Rector (Lord Derby) alone being absent. The Introductory Address to the students was delivered by Professor Lushington, Senior Professor in the University. In the evening the event was celebrated by a banquet, at which the members of the Senatus, the Duke of Montrose, the Lord Advocate, the Lord Justice-General, Sir A. Grant, the Lord Provost of Edinburgh, the Marquess of Bute, and others, were entertained by the Provost and a number of subscribers to the University buildings. The new University buildings are placed on the summit of Gilmorehill, and occupy a space of four acres. They have already cost £427,000, and £90,000 is still required to complete the hall and build an hospital.

WE understand that the Managers of the Edinburgh Infirmary have appointed a committee to consider the possibility of allotting a ward to Dr Thomas Keith, for the purpose of performing the operation of ovariotomy, with which his name is associated. For many years past, Dr Keith has kept up an hospital at his own expense, and has performed the operation in question upwards of a hundred times, with remarkable success.

OBITUARY.

Death of Thomas Anderson, M.D., F.L.S., Director of the Botanic Garden, Calcutta.—The death of this distinguished botanist, which took place here on the evening of the 26th October, calls for some public notice. He was a native of Edinburgh, where he prosecuted his literary, scientific, and medical studies. He took the degree of M.D. in the University of Edinburgh in 1853, and wrote a thesis on the Physiological and Therapeutic Actions of Atropa Belladonna, and the Characters of the Solanaceæ, which received high commendation. His attention was early directed to botany, and he distinguished himself during his University career by gaining the gold medal for the best herbarium collected within ten miles of Edinburgh. At an early period of his studies he took an interest in the plants of India, and he assisted Dr Cleghorn in arranging the Indian herbarium of the University. In 1854, he entered the Indian medical service, and went to Calcutta, whence he proceeded to Lucknow. He was with Hodson's Horse during the mutiny, and was present at several engagements. During the mutiny, his wife and family were shut up in Lucknow, under the charge of Dr Fayrer. While he was at Lucknow, Dr Anderson drew up a short account of the flora of the district.

Impaired health after the mutiny compelled him to return to Calcutta, and he was ordered home for two years. On his return to India, he was appointed to take charge of the Calcutta Botanic Garden during the absence of Dr Thomas Thomson; and when that gentleman afterwards retired, Dr Anderson was elected director of the Garden in his stead. He was now placed in a position where he could prosecute his favourite science. He did much to improve the Garden; and he took an active part in developing the botanical resources of India, and especially in introducing valuable medicinal plants. Among them may be mentioned cinchona and ipecacuan. He was sent to Java by Lord Canning, in order to procure specimens of the true yellow bark tree (*cinchona calisaya*), and he was the first to introduce the plant into India. He superintended the cinchona plantations at Darjeeling, which have increased most rapidly, and are now yielding valuable bark, which has been sent to Britain. The value of the quinine procured from cinchona bark in the treatment of certain fevers common in warm countries cannot be too highly estimated. Dr Anderson forced upon the notice of the Government the fact that £32,000 was spent on quinine annually in India. By Dr Anderson's exertions this important remedy bids fair to be within the reach of all our Indian dependencies. When we consider the reckless destruction of the cinchonas in South America, to which we have hitherto looked for a supply of bark, we can understand the value of Dr Anderson's services, not only to India but also to Great Britain.

For some time before his death, Dr Anderson was engaged in doing a similar service in the case of ipecacuan, a plant which is of importance in the treatment of dysentery, and he was about to send to India a considerable collection of ipecacuan plants which had been cultivated for India, in the Edinburgh Botanic Garden, at the request of His Grace the Duke of Argyll. Some of these plants had been transmitted from Rio Janeiro by a former graduate of this University—Dr Gunning—to whom application had been made by Professors Christison and Balfour. One of the latest visits paid to the Botanic Garden by Dr Anderson was for the purpose of examining the progress of these plants.

To Dr Anderson the botanical world were looking for the completion of the Flora Indica, the materials for which had been accumulated by Roxburgh, Wallich, Wight, Arnott, Hooker, Thomson, and himself. He was engaged in this important work at the time of his death. He has already published some valuable papers on Indian botany, and his monograph of acanthaceous plants, published in the Proceedings of the Linnæan Society, is one of great value.

Dr Anderson was an energetic labourer in the cause of science, and his illness was caused by overwork in India. He fell a victim to disease of the liver at the early age of thirty-eight. He was a man of a genial and amiable disposition, and his loss will be mourned by all who came in contact with him, and especially by all who took an interest in Indian botany. He has been cut off in the prime of life, after having given evidence of high powers of botanical investigation, and having attained an eminent position as a botanist.—*Scotsman.*

PERIODICALS RECEIVED.

American Journal of Obstetrics,—August.
American Journal of Syphilography and Dermatology,—October.
American Practitioner,—Oct., November.
Annales d'Oculistique,—September, October.
Australian Medical Gazette,—July, August.
Berlin. Klin. Wochenschrift,—Sept. 26 to November 21.
Births, Deaths, and Marriages, Monthly Return of,—September, October; Quarterly Return,—September.
British and Foreign Medico-Chirurgical Review,—October.
British Medical Journal,—Oct. 1 to Nov. 19.
Canada Lancet,—September.
Dublin Quarterly Journal of Medical Science,—November.
Food Journal,—October, November.
Gazette Médicale d'Orient,—July-August.
Glasgow Medical Journal,—November.
Journal of Anatomy and Physiology,—Nov.
Journal of Mental Science,—October.
Journal of the Scottish Meteorological Society,—July.
Madras Monthly Journal of Medical Science,—September, October.
Medical Press,—September 28 to Nov. 23.
Medical Times and Gazette,—October 1 to November 19.
Nederlandsch Archief voor Genees- en Natuurkunde,—Deel V., 2 Aflevering.
New York Medical Journal,—Sept. to Nov.
Philadelphia Medical and Surgical Reporter,—August 20 to October 8.
Philadelphia Medical Times,—October 1 to November 1.
Practitioner,—October, November.
Virchow's Archiv,—June, August.

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